

Bespoke Laboratory Central Water System, UK

Pharmaceuticals | Case Study

The Client

The Oxford Molecular Pathology Institute, built in January 2011, is part of the Sir William Dunn School of Pathology, a department of the University of Oxford Medical Sciences Division.

Their extensive research programme includes immunology, molecular developmental biology, microbiology, and cancer cell biology.

The £30m facility has four floors providing office and laboratory space for approximately 220 researchers and technicians, and a basement which houses support services.



Key Figures

- New bespoke engineered centralised system
- 90 points of use
- Reduce carbon and water footprint

The Client's Needs

Each laboratory has different applications requiring different water qualities. The higher the water purity, the higher the cost of production, so having the right technical and economic solution is vital.



Fitting a large number of individual bench-top systems to meet these requirements is expensive and takes up large amounts of laboratory space better utilised for other equipment, so a cost effective and energy efficient alternative was needed.

The Solution

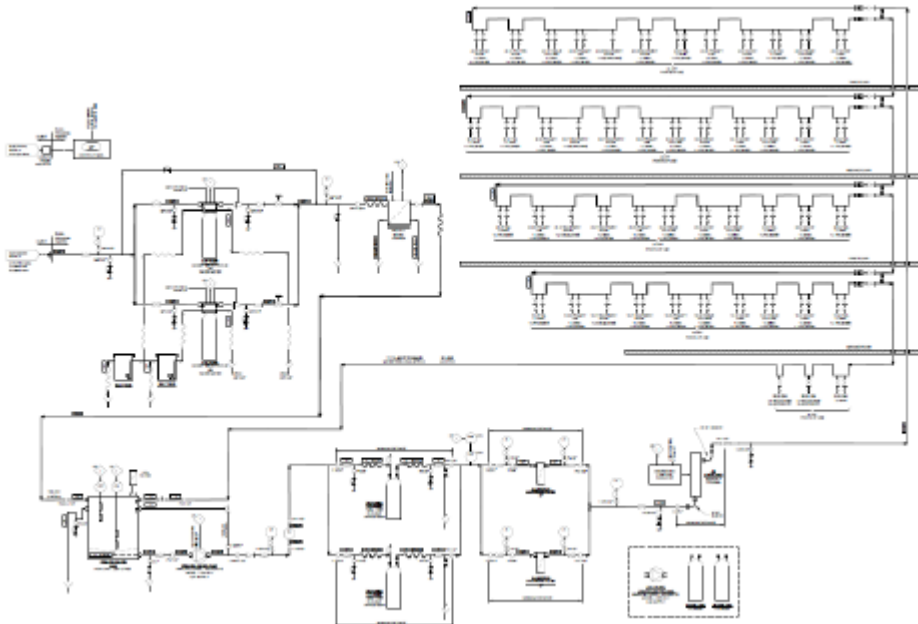
Veolia Water Technologies worked closely with the Institute's Chief Engineer, architects and building services engineers to develop a cost effective central system. The system is located in the basement, providing convenience of operation and maintenance, along with constant availability of water across all floors.

The solution comprises of pre-treatment, reverse osmosis, service deionisation and UV, the water is then distributed to the four floors via a ring main. Where further treatment is required, a purification system is located at point of use to meet the water quality demands.

Process Description

The system includes pre-treatment of the hard mains supply, which is fed into a MidiRO™ reverse osmosis unit to meet Type 3 quality and is then delivered into a 2250 litre tank. This water is then passed through a pair of parallel service deionisation (SDI) cylinders, which remove the residual dissolved salts, before passing through an ultraviolet irradiation unit to control microbiological growth, meeting Type 2+ quality. The water enters a ring main which delivers to 90 points of use around the four floors so that high purity water is available at the turn of a tap.

Unused water is continuously recirculated to the storage tank so that the water is always flowing, helping to prevent biofilm formation in the pipework. The water is further purified in the laboratory by the PURELAB® flex 2 to meet Type 1+ quality for exacting applications. et.



The Benefits

The centralised system has a number of advantages. It is lower in operating and maintenance costs, and because the polishers are fed with high purity water from the central system, fewer consumables are used which helps to reduce carbon footprint. High purity water is available at every point of use, which saves laboratory time, and the quality of high purity water can be monitored and controlled throughout the entire building. The wall-mounted polishers are equipped with flexible dispensing and take up no bench space. And finally, by softening the mains water and removing scale-forming salts, the reverse osmosis unit can operate at higher recovery rates, reducing wastewater for a smaller water footprint.



“This has been one of the most reliable new systems we have ever installed”, Chief Engineer of the Oxford Molecular Pathology Institute.

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