PumpSmart

CASE STUDY

ADDENBROOKE'S HOSPITAL BOOSTER SET UPGRADE

PumpSmart Limited attended site on a number of occasions with a view to formulating an upgrade proposal to replace and upgrade the existing twin pump fixed speed booster set identified as a potential failure risk on a critical system.

Reason for Upgrade

PumpSmart Limited was tasked to view the installation and make recommendations for a more reliable system.

On inspection of the twin pump fixed speed booster set it was noted that the pumps were cutting in and out more often than would normally be expected and there were no Non-Return valves on the set. The existing panel itself was old and replacement spare parts and components, particularly for the PCB, would likely be increasingly difficult to source going forward.

Proposal

Our technical sales engineer quickly ruled out the option to simply fit a new control panel whilst retaining the main pump set. This was for a number of reasons but most significantly, the lack of non-return valves meant that the set would still run more often than expected thus negating some of the energy savings achievable by a variable speed set and this would also put more unnecessary wear and tear on the pumps themselves, thus reducing their full potential life expectancy.

Bespoke Solution

With the critical nature of this booster set at the forefront of everybody's minds, it was necessary to design into the system 'back up' in the event of failure and provide a solution that would ensure that these critical services were brought back online with minimal interruption to supply.

It was proposed to replace the twin pump booster set with a three pump variable speed booster set. The set would have three pumps, all of equivalent size to those installed on the existing set. This would therefore, in effect, provide additional duty capacity which, in the unlikely event of one or two pump failure, meant that water would still be available to the system.

Each pump would have a corresponding inverter mounted in a new control panel and the panel itself would provide Auto-Changeover for duty rotation and changeover on failure.

The panel included a Single Volt Free Contact for Common Fault Alarm and integrated Dry Run Protection. The inverters were standard IP20 Danfoss.

Advantages

The advantages of this scheme were:-

1. Reduced down time during upgrade works installing out of hours to minimise supply disruption to this critical unit whilst the set was installed

2. Increased duty capacity thus providing fail safe water supply in the unlikely event of pump failure

3. All pumps now inverter controlled providing smoother distribution of water and crucially, energy savings

4. Control panel providing auto-changeover for duty rotation and changeover on failure

5. Three WRAS Approved Vertical Multistage Pumps and 24 Litre WRAS Approved Hydraulic Accumulator

Installation

PumpSmart Limited, in conjunction with the client, devised a scope of works which allowed a smooth transition from the old arrangement to new with minimal down time. Works were carried out overnight so that critical services were guaranteed to be back online in the morning. The new three pump booster set was delivered with the control panel and installed following fitting of new Stainless Steel 'mapress' style pipework to accommodate the new booster header positions.

The new control panel was then positioned and secured, the old panel was disabled and decommissioned and once the new control panel was in place, the pipework to the system was opened, each pump vented in turn and service was restored to full supply within the tight deadline.

Our dedicated service engineers completed all works out of hours and commissioned the new booster set, leaving it in full working order.

But it doesn't end there, as part of the package we have provided ongoing technical back up and delivered product training on the new equipment to the hospital maintenance team.