



**CONTROL  
TECHNIQUES**



**UNIQUE  
COST-SAVING  
SOLUTION**

BYZAK LIMITED | WATER

**DRIVE OBSESSED**

# NO BLOCKAGES IN THE FIRST 6 MONTHS

Byzak Limited, a Framework Contractor to Northumbrian Water, worked with Nidec to develop a solution for pump blockages at Seaton Sluice, near Whitley Bay. Variable speed drives have been programmed to automatically reduce the problem of 'ragging' and eliminate the need for human intervention.

## Overview

- Reduces pump blockages
- Lowers maintenance costs
- Remote monitoring
- 100% redundancy

## The Challenge

**'Ragging' – the fouling of pump impellers – is a costly, ongoing problem faced by water companies the world over.**

As well as it being a dirty unpleasant task, the cost of clearing a blocked pump in a dirty water facility is expensive, involving a maintenance team and sometimes a crane. Downtime may extend to several days during which time back-up systems are under additional pressure. A total system failure can result in effluent leakage with implications for the environment, human health, clean-up costs and breaches of legislation.

## The Benefit

**The installation at Seaton Sluice had no blockages in the first six months of monitoring**, where previously there were regular, often weekly, blockages.

## The Solution

**Key to this unique solution is the detection of ragging at a very early stage and Unidrive SP drives were chosen for two main reasons: the drives measure true load torque in real time and have a powerful internal PLC, which has a reaction time measured in microseconds.**

Two 160 kW Unidrive SP drives were installed, both fitted with SM Application modules and communicated with each other via Control Techniques' high-speed network CT-Net (which gives 100% redundancy in the event of a blockage or failure). Each drive controls a single pump and these are configured in duty and standby mode.

When the PLC recognises a change in the pump preset torque profile indicative of 'ragging' (it is sensitive to 1-2% changes), it initiates a set of procedures to clear the impeller. If they fail to rectify the problem an alarm is initiated. The engineer can remotely access the drive by Ethernet using Control Techniques software to assess the situation and perform manual operations.

*"This is an excellent example of modern technology providing a cost-effective solution to a long-standing water industry problem, giving significant improvements in performance, as well as cutting downtime and maintenance call-outs."*

Andy Laundon | M&E General Manager

