

# CONDITION MONITORING IN THE WATER SUPPLY & TREATMENT INDUSTRIES

Remember the good old days when you had plenty of spare capacity ?  
If you had a failure you switched over to a standby unit.

*Who needed Condition Monitoring ?*

**But times are changing -**

**You're part of a lean & efficient business now.**



- Spare capacity costs real money.
- You're running machinery closer to its design limits.
- Trouble-free running is a thing of the past.
- Unplanned failures & secondary damage eat into your budget.

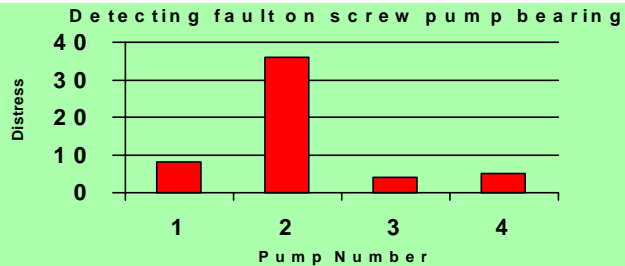


**Now more than ever you need Condition Monitoring !**



## a) Monitoring screw pump wall plate bearings

Screw pumps are based on the principle of the Archimedes screw and typically rotates at ~ 45 rpm. The drive gearbox, wall-plate bearing and bottom end (plain) bearing are critical parts which are very easy to monitor using our MHC technology. The figure shows Distress readings on 4 wall plate bearings one of which has a very high reading indicating a serious fault. There were no other signs that the bearing was in a bad condition, it was not noisy or running hot. Acting on the Distress reading strip-down revealed serious pitting on one of the tapered roller elements. Approximately £20 K was saved compared to an in service failure which would have destroyed the (submerged) bottom end bearing.



## b) Identifying a faulty aerator gearbox.

Although gearboxes are mechanically complex and difficult to monitor using vibration techniques the MHC approach reveals the presence of problems without needing to know details of bearing sizes, shaft speeds, numbers of teeth etc. At one site 80 gearboxes were monitored on a monthly basis and the Distress reading revealed 10 to have problems. The figure shows the trend of AE Level on one gearbox as it approached final failure. The AE signals tell a clear story yet the site engineer could not accept that the gearbox had a problem since it did not feel hot, feel to be vibrating, sound noisy or have discoloured oil. Two weeks later this gearbox seized and was a total write off.

