

CASE STUDY



CUSTOMER

Northumbrian Water

SECTOR

Water

SERVICE

Pump and Motor
Overhaul & Repair
Services

Blackwell Pump

A Weir vertical raw water pump at a Northumbrian Water site in Darlington was underperforming due to general wear and tear. Northumbrian Water required a team who could remove the pump from site and dismantle it to identify the cause of the performance issues.

Specialising in both pumps and motors, Houghton International were also able to overhaul the 3.3kV motor driving the pump, ensuring that once the repair was returned to site both pump and motor would be performing optimally.

WHY HOUGHTON INTERNATIONAL?

- **Capability to work on both pump and motor**
- **Experienced site team able to remove pump and motor from site and reinstall after work was complete**
- **Pump testing capabilities for a wide range of pumps up to 11kV**
- **Reverse engineering capabilities meaning parts can easily be replaced even if obsolete**



THE SOLUTION

The Houghton International site team assessed the site, isolated the pump and motor and removed them for transport back to the Houghton International workshop. The pump was then stripped down and a report was provided identifying causes of the reduced performance. Various parts were extremely worn, including impeller rings, shafts and shaft sleeves. Clearances on the impeller runners and rings were well above recommended levels, bearing bushes were missing and the bearing spiders were broken and needed replacing.

Some parts were repaired, and others, such as the impellers and casings, were machined in-house. This was more cost-effective than procuring replacement parts, meaning savings could be passed on to the customer. New spiders were also reverse engineered using CAD software then manufactured in-house as the replacement part could not be easily acquired. In addition, the motor underwent a standard overhaul including cleaning, balancing, and replacing bearings.

THE RESULT

The initial findings were reported to Northumbrian Water, identifying the reasons for the reduced performance, and a work scope was agreed to establish exactly what work would be carried out. With reverse engineering capabilities in-house, a number of parts that were damaged or worn beyond repair could be easily replaced. This also provided the opportunity to make modifications to the parts to improve performance.

During the repair, the pumps team identified a change that could be made to the pump's gland arrangement. By modifying the gland packing system used, this would allow adjustments to the gland packing to be made without having to stop the pump or work inside the guarded area. The benefit of this is that in future leaks can be stopped without having to stop the pump from running, reducing pump downtime and the associated costs.

Once both the pump repair and motor overhaul were complete they underwent testing, including pressure testing to 11 bar, in our pump test facility before being returned to site and reinstalled by our site team.



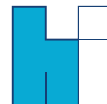
Houghton International delivered reliably and to a high standard, with professional service levels. They kept the Northumbrian Water team informed of progress throughout the project and the pump was turned around within budget and timescale."

Alexander Wallis, Maintenance Electrician, Northumbrian Water

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