

CUSTOMER

Northumbrian Water

SECTOR

Water

SERVICE

Pump Overhaul
and Repair

Borehole Pump

Northumbrian Water operates five submersible borehole pumps at Ovingham raw water pumping station which pump water from source to the impounding reservoir at the nearby treatment works. The borehole pumps are critical to the process that provides the water supply to Newcastle and the Tyneside area.

When a pump motor unit failed, a timely, quality and cost efficient repair was required to get the pump back into service as soon as possible to ensure the supply to the impound reservoir could be maintained during high summer demand.

WHY HOUGHTON INTERNATIONAL?

- Houghton International has consistently delivered a high standard of service, completing repairs on time and on budget to the quality required by Northumbrian Water
- As a result of past experience and enhanced pump services capabilities, both the pump and the motor were sent to Houghton International for repair, meaning that both components could be worked on together
- One point of contact throughout the repair to manage and oversee the project more efficiently



THE SOLUTION

Houghton International carried out an overhaul and refurbishment of the Flowserve pump model P23 EKL 3 stage submersible bore hole pump and a full rewind of associated 559kW /3.3 kV MI 19-120-4 motor.

Initial inspection highlighted a range of electrical and mechanical work to be carried out, which included:

- Reverse engineering the pump shaft
- New impeller rings and impeller runners to bring clearances back into tolerance
- Manufacturing new rubber lined bearing bushes
- Manufacturing all new sleeves

Due to the nature of the water filled motor the rewind was non standard and highly specialised. The rewind utilised a specialised continuous pull through winding that required a dedicated clean area to protect the winding material, 880 meters of continuous copper wire and was tested in water at each stage of the rewind to assure the integrity.

After the pump and motor were repaired various tests were conducted to ensure there would be no issues on installation, including hydrostatic pressure testing to 22 bar on the built up pump and 40 bar on the body, a locked rotor test and load test. The motor was also tested independently prior to being fitted to the pump - it was filled with water, vertically mounted and ran. The outer casing and pump were also both pressure tested to ensure there were no leaks and provide further assurance to the customer.

Engineers from Houghton International attended site during the installation of the pump and worked with Northumbrian Water engineers to support commissioning. Tests were carried out on site and the pump is fully operational - running at 123amps and pumping 30MLD as intended.



THE RESULT

The repair was delivered back to Northumbrian Water within the agreed timescale, to the agreed budget and in full working order. Houghton International staff attended site and witnessed the commissioning, this was appreciated by the customer and provided additional support as needed to complete the project.

Utilising Houghton International's vast experience in relation to both motors and pumps, the refurbishment was completed in a shorter timescale than offered by other suppliers representing better value to the customer and resulting in a high quality repair.

Using one supplier for both the motor and the pump work offered multiple benefits including increased quality assurance as a result of consistent workmanship, the ability to fully test the whole system prior to install and improved project management. Furthermore, should there be any issues in the future, the customer only has one point of reference in relation to warranty.



Houghton International provided a professional service throughout. Keeping us informed of progress and keeping to our required critical path for delivery.

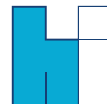
After rigorous testing the pump was installed with Houghton International engineers in attendance to assist. The repaired unit was set to work straight away and has operated reliably since, helping provide Tyneside with a reliable source of potable water"

John Fielding, Maintenance Manager, Northumbrian Water

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