

Rented pump system supports major Scottish Water refurbishment

A temporary pumping system enabled improvements to be completed at a major Scottish Water pumping station, ensuring uninterrupted operation throughout a 10-month project.

Challenge

Contractor WGM Engineering was undertaking planned refurbishment work within the dry well at Irvine Harbour Wastewater Pumping Station, as part of wider site improvements. On Scotland's west coast, the site serves much of the Irvine catchment.

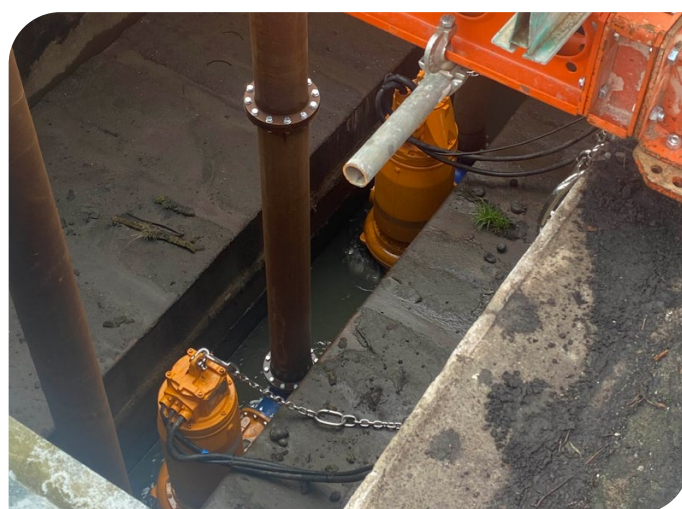
A temporary pumping bypass system was required within the wet well to maintain flows whilst refurbishment works were carried out in the dry well. The system would have to manage incoming flows of more than 500 litres per second, while handling fluctuating site conditions with high and variable flows, while protecting against potential power interruptions.

Solution

Xylem's rental engineering specialists were selected to design, supply and install a fully automated bypass system to divert flows around the dry well, enabling continuous operations while the refurbishment took place.

Installation of the temporary system took four weeks, followed by a two-week commissioning period. Rented equipment included:

- 2 x Flygt 3312 pumps as the primary duty and assist, powered from the site's mains supply via temporary variable speed drive (VSD) control panels
- 1 x Flygt 3400 pump as a storm duty unit, providing additional capacity during peak flows
- Ultrasonic level controls, incorporating interlocks to optimise pump operation
- Temporary discharge pipework to bypass the dry well completely



Flygt rental pumps installed within the wet well maintained continuous wastewater flows throughout the refurbishment programme.

- A standby generator – powering the temporary Storm VSD (When required) with automatic float controls, ensuring operation in the event of a mains power failure on the duty and assist + ultrasonic level controller.
- Xylem Vue's Secure Connect (formerly Xylem Avensor) telemetry application

Under normal conditions, the two Flygt 3312 pumps alternated duty/assist to manage normal flow efficiently. In the event of rising levels, the system automatically switched to a storm configuration of the Flygt 3400 pump, with a single duty pump.

Once levels returned to normal range, the system reverted to standard duty/assist and the storm pump stood down. The system was set up to operate automatically with the customers required start and stop levels.

Temporary pipework installed to bypass the dry well allowed contractors to isolate and safely access the chamber. Structural support was provided through the installation by WGM of temporary bridges across the open chamber, enabling secure routing of discharge pipework while maintaining site safety and access.

The entire system was monitored by Xylem Vue's Secure Connect application (formerly Xylem Avensor), a telemetry platform that provides 24/7 remote access to live performance data for continuous visibility of pump operation.

The temporary pumping system was in place from May 2024 until March 2025.

Results

The rental system enabled WGM Engineering to complete the refurbishment safely while maintaining continuous operations. By combining a generator-backed pump system, storm capacity, automated controls and continuous remote monitoring, Xylem delivered a robust system capable of responding automatically to changing site conditions.

The project demonstrates how rented systems can provide the same levels of performance, reliability and resilience as permanent installations, while offering fast deployment without the capital investment associated with permanent purchases.

Jim Michie, Delivery Manager, WGM Engineering, said: "Maintaining uninterrupted operation at a site of this scale was critical throughout the refurbishment programme. The temporary bypass solution performed as required, effectively managing high and variable flows. The close collaboration between WGM Engineering and Xylem was key to the project's successful delivery."

Jordan Hunter, Rental Senior Project Engineer, Xylem, "We were pleased to support this important project at Irvine Harbour. Temporary pumping solutions need to deliver the same levels of performance, reliability and resilience as permanent installations.

"By using a rental service, customers gain immediate access to the latest pumping technology without the time and cost associated with purchasing new assets."

Xylem maintains an extensive fleet of rental treatment equipment across the UK and Ireland, with systems available for delivery, installation and commissioning within days.



High-capacity bypass pipework diverted flows around the dry well, enabling uninterrupted operation at Irvine Harbour Wastewater Pumping Station.



Temporary bridges provided safe access and supported pipework routing while refurbishment works were carried out in the dry well.

Client
Scottish Water

Xylem's role
Design, supply, install and monitor a fully automated temporary bypass pumping system that enabled WGM Engineering to carry out refurbishment works at Irvine Harbour.