

Providing a reliable control infrastructure for wastewater treatment works

Client:

United Utilities

Industry:

Water/wastewater

Location:

North West England

Challenges:

- Replace legacy PLC system
- Minimise impact on ongoing operations

Solutions:

- Siemens S7 PLCs
- S7-400 CPUs and communications cards
- ET200M IO racks
- HMIs using Siemens MP277 Touch

"We are proud to have been selected by United Utilities because of our experience in successfully carrying out asset replacement projects and working with legacy systems."

- Mark Campbell

*Business Unit General Manager,
Actemium Automation Yorkshire*

Background

United Utilities is responsible for delivering 1.8 billion litres of water a day to more than 3 million homes and businesses in the North West of England, and treating all the area's wastewater. The utility manages hundreds of reservoirs, treatment works and pumping stations, water pipes and sewers.

Challenges

A large United Utilities wastewater treatment works and four related facilities were making use of eight SIMATIC S5 programmable logic controllers (PLCs) from Siemens. After more than 40 years of transforming industries by automating machines and processes across myriad industries, the S5 had become obsolete and would soon no longer be eligible for support with spare parts and repairs. Replacement hardware would ultimately become increasingly difficult to obtain on the third-party parts market.

Migrating the PLCs to the latest generation — the SIMATIC S7 — was integral to the ongoing operations of United Utilities' wastewater facilities. However, it needed to be done while retaining existing functionality and minimising any impact on the operation of the wastewater treatment process.



Automation
UK

Solution

Actemium Automation Yorkshire's team of engineers designed the new system architecture needed and advised the main installation contractor of the needed software and hardware.

- Eight existing S5 PLCs were replaced with Siemens S7 PLCs
- S7-400 CPUs and communications cards were used, with ET200M IO racks communicating with I/O racks via Profibus
- SCADA is WinCC on Siemens industrial PCS
- Legacy HMIs were replaced with MP277 10" touch screens
- Existing legacy S5 code was converted and translated onto the S7 platform, thereby retaining existing PLC functionality
- New HMIs (using Siemens MP277 Touch) were provided to replace legacy text HMIs. Through the new HMIs, the ability to display plant mimics and control the plant locally was achieved.
- New screens were developed based on SCADA

Result

The result was a migration from a legacy system that allowed United Utilities to continue its wastewater treatment processes with minimum impact, while providing a new system that offered enhanced operational abilities and would allow for ongoing support of systems essential to the people and businesses of the North West.

