

PLC to DCS migration within the water industry

Client:

United Utilities

Industry:

Water/wastewater

Location:

North West England

Challenges:

- Replace legacy S5 PLC system
- Replace RS View SCADA and HMI Control system
- Integrate existing Allen-Bradley SLCs
- Fully redundant DCS
- Operator process improvements

Solutions:

- Siemens PCS7 with ET 200M RIO
- Engineering station
- 2 off-duty/standby Automation Stations
- Fibre Optic Ethernet
- Profibus networks

"The additional benefits we were able to bring to the site's operations team have been greatly appreciated by them. They save time and money, and been able to carry on running the plant while investigating any problems that may arise."

- **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

United Utilities approached Actemium Automation Yorkshire seeking a way to replace the Siemens S5 PLC platform they were using in a wastewater treatment facility, but which had become obsolete, and also replace their existing RS View SCADA and HMI Control system. The solution needed to retain and integrate the existing retrofitted site Allen-Bradley SLCs in the new system, provide for a fully redundant distributed control system (DCS) to support this critical site and add process improvements needed by United Utilities' operations team to help them rely less on maintenance personnel. Our solution also needed to be implemented in a way that retained the plant's existing functionality.

Solution

Actemium Automation Yorkshire's team of engineers put together a PCS7 with ET200M RIO solution that met all the customer's requirements. The solution was comprised of the following:

- Two off-duty/standby OS servers
- Engineering Station and Central Archive Server
- Two off-duty/standby automation stations supporting ET200M remote I/O in five process areas, with touch screens to provide operators with site-wide visualisation and control from any are of the wastewater plant
- Fibre Optic Ethernet and Profibus networks to support high-speed data transfer over the whole plant.

In addition, we developed PCS7-style process objects for integration with the Allen-Bradley PLCs to provide a seamless site-wide system.

Result

Standard PCS7 functionality has greatly improved United Utilities' wastewater treatment site's diagnostics and faultfinding, which is allowing site operators to support themselves with less reliance on maintenance personnel. In turn, maintenance costs have reduced, with significantly fewer callouts for process support and breakdowns.

By having duty/standby operator station servers supporting remote clients, the need for HMIs has been negated, which has reduced software and hardware costs. The use of touch screens has allowed operators to simultaneously run the wastewater treatment plant and investigate localised problems.

