

# Water treatment project s-Hertogenbosch, Netherlands

A water treatment company in the Netherlands works to replace a multitude of incompatible legacy control systems with a single new automation concept for water purification



## The requirements

The Aa en Maas Water Authority supplies pure water and treats wastewater in the south of the Netherlands. It includes seven wastewater treatment plants and 107 sewage pumping stations, spread across five regions, covering an area of 1,162 square kilometers. Currently, in order to operate and monitor the installations, no fewer than 11 different control systems are used, a legacy of the piecemeal development of water treatment in the past. These “islands of automation” present the Aa en Maas Water Authority with significant difficulties. Workers often cannot transfer from one site to another without being retrained on the different systems, and there is no integration of the water treatment data with the management information systems of the head office. With a view to the future, the water authority decided to standardize the

water process automation systems and integrate them with its management information systems. This would enable it to automate its maintenance management and to compile production data over longer periods, facilitating more accurate forecasting of future water treatment demand. The Aa en Maas Water Authority began by drawing up a supplier-independent master plan for process automation, which was reviewed with potential automation system suppliers. Following several rounds, Siemens was selected to be the systems and automation supplier for the water treatment automation project.

## The solution

The system proposed by Siemens was based on the SIMATIC PCS 7 Process Control System in combination with a SIMATIC S7-mEC (modular Embedded Controller) at every location. The

S7-mEC is a fully-fledged PC accommodated in the housing of a modular S7-300 CPU. The distributed SIMATIC S7-mECs function as programmable logic controllers (PLCs) but communicate with a centrally located server in order to deliver all management reporting and visualization data. Process automation and office automation functions are combined in one platform. In a low-lying country like the Netherlands, a system failure can have serious consequences. To achieve a service availability of 99.95 percent, the system employs a multilayer topology with redundancy at each layer. To reduce the risk of data loss due to network failures, the SIMATIC S7-mECs can communicate through both public telecommunication networks and a backup satellite connection.



**End customer**  
Waterschap Aa en Maas

**System integrator**  
Siemens

### The benefits

The great advantage of this project is its character of independence from people and place. Every sensor will be accessible from every site in the company, and every employee will have access to the process automation system – also via tablet PCs. Depending on their function, staff members may also be able to control the system. Another great advantage is that adaptations will only have to be implemented once, whereas formerly they had to be programmed up to four times. Furthermore, the central, object-based library considerably reduces the chance of failure. The system will accurately monitor which adaptations have been carried out where, when, and by whom. This enables a faster and more efficient diagnosis of failures.

### System brief

- The large geographical spread of the Waterschap Aa en Maas from Den Bosch to the German border and in the south to the borders of the province of Limburg and Belgium constitutes a management challenge
- Harmonization of 11 different control systems
- Centralized automation system for seven wastewater treatment plants and 107 sewage pumping stations
- 99.95 percent water purification availability

### Scope of supply

- SIMATIC PCS 7 OS as overview for whole area, including SIMATIC PCS 7 Web Server mobile and online access
- SIMATIC S7-400 controllers and industrial PCs for water treatment plants
- SIMATIC S7-mEC modular Embedded Controller used as controller and HMI for pumping stations
- SIMIT process simulation and operator training systems

### Benefits at a glance

- Secure central access to all system components thanks to Internet link via SIMATIC PCS 7 Web Server
- Decentralized system access via tablet PCs
- System availability of 99.95 percent thanks to high redundancy levels
- Cost reduction through uniform PCS 7 automation system
- Higher system and data transparency for future management initiatives
- Improved operating flexibility and maintenance management