



Utilities

Operational Monitoring and Control Infrastructure Improves Reliability and Security of Adelaide's water

Client	SA Water
Project	North South Interconnection System Project (NSISP)
Location	Adelaide, South Australia
Duration	2010 - 2013



The North South Interconnection System Project (NSISP) was implemented by South Australian Government-owned water utility, SA Water, to inter-connect metropolitan Adelaide's northern and southern water supply networks.

The project would improve the reliability and security of Adelaide's water, and allow water from the Adelaide Desalination Plant to be distributed throughout the whole water supply network. The project included the installation of pumping and valve stations for the water transfer through four unique but related systems.

SAGE Automation was engaged as the System Integrator to deliver the Operational Monitoring and Control Infrastructure for the project. The works included the design, construction, installation, and commissioning of the control infrastructure at all pump stations, valve stations and tank sites utilised for the transfer.

We asked SA Water Contract Delivery Manager, Fady Boumouglbay why he turned to SAGE to support this project.

"This was an important project to support our water network into the future and SAGE Automation has delivered a SCADA system which enables greater monitoring and control flexibility capability." Fady Boumouglbay, SA Water.

Capabilities Demonstrated

Local control systems were implemented at each of the sites, and where necessary linked to a system wide controller over a dedicated critical control radio network. A separate telemetry system was installed for the site monitoring and control from SA Water's SCADANet. Intelligence added to the infrastructure allows SA Water to configure each system to a transfer mode in order to fulfil a desired operating scenario, then allow the system to manage the control and optimisation of the network.

Project Highlights

Whilst SAGE developed and implemented a system based on the client design principles, many elements of the system were being created for the first time, both for SA Water and the technology in relation to the volume and capacity required.

- Integrating a new control system with existing equipment
- Delivery of a control system that is appropriately integrated with existing SA Water business systems
- Delivering a solution that optimises the use of existing operational infrastructure
- Providing SA Water with an upgraded SCADA system to enable greater monitoring and control flexibility capability.

Technology Utilised

A number of technologies were implemented in the project. It was the client's first instance of expansive use of encrypted digital radios being used for monitoring and control. The remote monitoring and control capability was significantly increased on completion of the works. Telemetry was used for pressure and control of a 20km section of pipeline, where downstream pressure feedback over the digital radio network was used for the control of HV pumps enabled by a redundant control system and network arrangement.

Project Outcomes

SA Water now has the ability to control their network from a centralised location, rather than relying on operator intervention at each of the remote sites as they did previously. Once an operational decision has been made for a desired outcome or 'scenario' of the network, the control system manages itself and optimises the flow to each of the storage locations to maintain a high quality water to metropolitan Adelaide clients.

Many thousands of data points are retrieved by the SCADA system and forwarded to the client's Operational Data Store. This data is used to assist the operations team with their decisions in configuring the network, and is processed by automated decision making tools to further enhance the network control and optimisation of the assets.

The upgrade of the network has secured Adelaide's water supply for future growth and expansion for the next 50 years. The use of the latest technologies ensures the water is conservatively delivered to the customer distribution network to the required client quality standards.



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