

"The most outstanding benefit with Wonderware on board right now has been the data collection process and our ability to trend it, produce reports and process issues much more quickly."

Ted Ellis,
SCADA Systems
Control Officer,
Cairns Water

Wonderware Software Unites Disparate Water & Wastewater Systems for a Solid Solution

Cairns, Australia — Despite being the driest populated continent on Earth, Australia has one of the highest per capita water consumption levels in the developed world. Cairns, known as the Gateway to the Great Barrier Reef, is a growing metropolitan area on Australia's northeast coast. The city is acutely aware of the importance of protecting its natural resources - especially its water supply. Recently the city has launched education and awareness programs to help both residential and industrial water users understand the impact that their water consumption and conservation can have on the environment.

Cairns Water is the city agency responsible for water and wastewater management as well as solid waste and recycling services for 145,000 people in Cairns. The Southern Treatment plant, one of six plants in the system, is a vital link providing primary and secondary stages of sewage treatment for 60,000 of the residents.



Searching for New Solutions

For years, an old and unsupported SCADA (supervisory control and data acquisition) system had been used to control the Southern Treatment plant. But Cairns Water recognized the need to modernize, so it decided to investigate a new software solution. If successful, the upgrade would eventually roll out to the entire Cairns Water system, which includes five additional water treatment plants, three biosolid disposal points and a biosolid reprocessing plant.

Cairns Water called upon Wonderware Australia, who in turn consulted with Parasyn Controls, a Wonderware Archestra® Certified System Integrator, to develop an ideal solution for this large and diverse infrastructure.

An Absolute Need — Compatibility and Scalability

The requirements of the Southern Treatment plant presented a number of challenges. With 40 pumping stations feeding into the central location, geography is a prominent factor. Engineers must be able to control all of the processes - no matter where the station is located or where plant operators are working. The system has to facilitate 24/7/365 monitoring to maintain safety standards, even though the plant is staffed only about 50% of the time. Also, the new software would have to be compatible with the plant's existing technical platform, which was based on Microsoft® products. And finally, the solution implemented in the Southern Treatment plant upgrade needed to be scalable to the entire Cairns Water system over time.



Plant operators can easily monitor and control equipment through the Wonderware InTouch human-machine interface

Wonderware Software Meets the Challenge

After analyzing these needs and the future plans of Cairns Water, Parasyon Controls recommended the SCADA software solution from Wonderware.

Integration of the new system with the plant's existing Microsoft-based platform was an important factor for the initial installation. And, since the ArchestrA technology decreases development costs and enables existing applications to be easily replicated, it would provide the most efficient and cost-effective option for the planned system-wide upgrade.

Another critical advantage is that Wonderware software would provide plant engineers the ability to maintain the system from the central location - eliminating the need for frequent travel to the pumping stations located around the city. With Wonderware InTouch®, the award-winning Human Machine Interface (HMI) software, engineers can supervise plant systems continuously. Its intuitive graphical interface makes visualizing the plant's processes easy. With a simple mouse click, they can stop and start the pumps, reset faults, open and check valves or secure complete sections of the system. And when the main plant is not staffed, all of these capabilities are available for remote access, so operators can make most adjustments from their current location, rather than having to return to the plant.

And for management, the Wonderware Historian provides high-performance, real-time data and historical reports. All event data is time-stamped for accuracy. Built on Microsoft SQL Server®, the Wonderware Historian gives users the ability to quickly pinpoint plant inefficiencies and correct them.

In the case of Cairns Water, this has led to a more consistent effluent. With real-time data, engineers can accurately account for dissolved oxygen levels over time and adjust flows accordingly. By managing daily variations, they have achieved higher-quality effluent and have also realized power reductions.

Also important for Cairns Water and the safety of the city's water supply is the software's alarm function. Wonderware SCADAAlarm™ notifies technicians in real time if conditions require their attention, leading to a system with much more rigorous security.

Multiple Awards Confirm the Strength of the Solution

Cairns Water is not the only one praising the new system:

PACE, Australia's magazine covering process and control engineering, awarded Parasyon Controls its 2006 Zenith Award in the water and wastewater category. The judges said, "It is good to see an integrator and a water authority work in conjunction to deliver measurable outcomes. This particular system has several strengths in its design and implementation, namely data transmission, redundancy and data historian. All parties should be congratulated in delivering a well-thought-out system that realizes substantial benefits."

And Parasyon also won Best SCADA solution in the 2005 Wonderware Open. This international competition is judged by industry experts, trade editors and members of Wonderware Marketing.



Aeration pools

Powerful Results, Measurable Benefits

Not long after the new Wonderware software solution was implemented, the positive effects began to be felt by Cairns Water as well as the citizens served by the Southern Treatment plant.

The Wonderware SCADA system has improved response times and provides better environmental compliance and monitoring, plus it enables engineers to react quickly to alarms. And with the ability to control the system from any location throughout the plant's wide-ranging geography, the new solution answers the priority need for continuous control, no matter where engineers are located.

Ted Ellis, Cairns Water's SCADA Systems Control Officer, put it this way, "Wonderware added up to the best choice based on its scalability, its support package and the multiple tools offered to standardize not just our southern plant, but all of our treatment plants and our reticulation network based on one software standard."

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