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Fast Facts

- The SCADAConnect module links Westernport Water's WaterGEMS water model and its live or historical SCADA data, creating an up-to-date and accurate water model

- Westernport Water's investment in GIS, SCADA, and water modeling integration will provide engineers with a reliable tool for management and operational decisions regarding its water distribution system

- Impacts of this modeling project include cost savings, water conservation, and environmental benefits

Westernport Water Uses WaterGEMS® to Achieve Automated Distribution System

Delivers Cost Savings in the Operation and Management of More Than $43 Million in Water Assets

Accurate Decision Tool Was Way to Go

Westernport Water provides water, wastewater, and recycled water services to nearly 16,000 properties on Phillip Island, in the state of Victoria, Australia, and an area of the mainland from The Gurdies to Archies Creek. Using Bentley's WaterGEMS water distribution modeling software integrated with a geographic information system (GIS) and supervisory control and data acquisition (SCADA) system (both introduced into the utility the past two years), Westernport Water's managers were able to achieve a high-performance, automated system. This targeted investment in new technologies is currently delivering substantial cost savings and contributes to the effective operation and management of more than $43 million in water assets.

The Open Spatial GIS, in conjunction with WaterGEMS, enables simple and easy updates of the system, including all new subdivisions. The Control Microsystems SCADA system allows field-measured data to be brought directly into WaterGEMS using the modeling software's SCADAConnect and Darwin Calibrator modules.
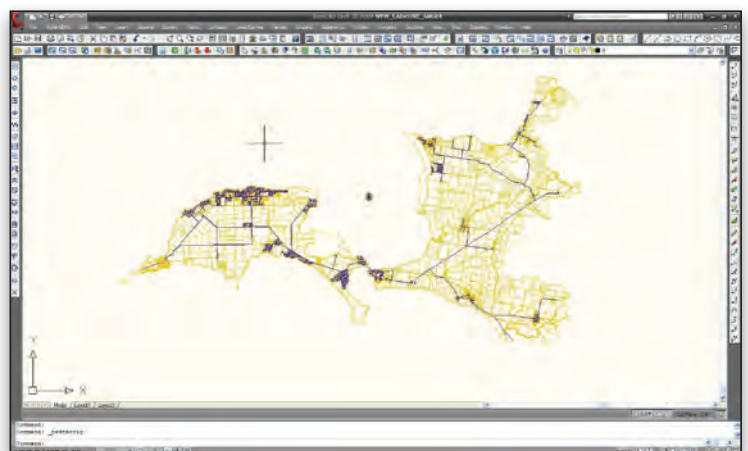
Westernport Water's WaterGEMS model shown in the AutoCAD interface

Since SCADAConnect can use both historical and real-time data, the model is constantly up to date, but also has tables of previous values for trending and projections. This means that flow, pressure, and tank-level data for each demand zone can be fed on a real-time basis, enabling the system to model real-world conditions.

Using the imported SCADA values, Darwin Calibrator, and the demand inversing tool in WaterGEMS, Westernport Water engineers can proportionally change the demand values assigned to those nodes within each demand zone. This innovative first for the water industry in Victoria allows the model to continually update demand groups. As a result, all calculated values in the water model are more accurate, since the exact flow from the SCADA system is used to calculate, for example, velocity, losses, and system curves. An up-to-date and accurate model gives engineering design and operational personnel the best possible platform for decision making.

Cost Benefits, Efficiency, and Environmental Improvements

Previously, Westernport Water engaged the services of external contractors to manually upgrade and calibrate its water model. The SCADAConnect technology with real-time updates will

SCADA flow meters

save Westernport Water the cost of these calibrations, which came to around $80,000.
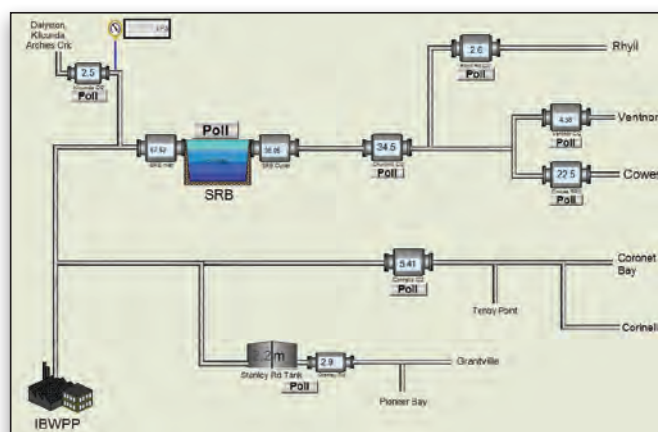
Additionally, the WaterGEMS water model will help deliver savings in leak detection by measuring and identifying nonrevenue water. Westernport Water is aiming to achieve a 25 percent reduction in water losses and recover up to $85,000 (retail value) of water. Reducing water losses also means that less water will need to be pumped to customers to achieve the same level of service, so carbon emissions will be reduced as well.

Dean Jagoe, project engineer, Systems, at Westernport Water, concluded, "Westernport Water's outlook on

its ability to effectively develop and sustain our water distribution infrastructure has never been so positive. The integration of GIS, SCADA, and water modeling technologies will provide unprecedented scope for managers, engineers, operational, and maintenance personnel at Westernport Water to understand, on a real-time basis, how the water network is performing. The level of integration being achieved is expected to set benchmarks in informed decision-making for our organization."
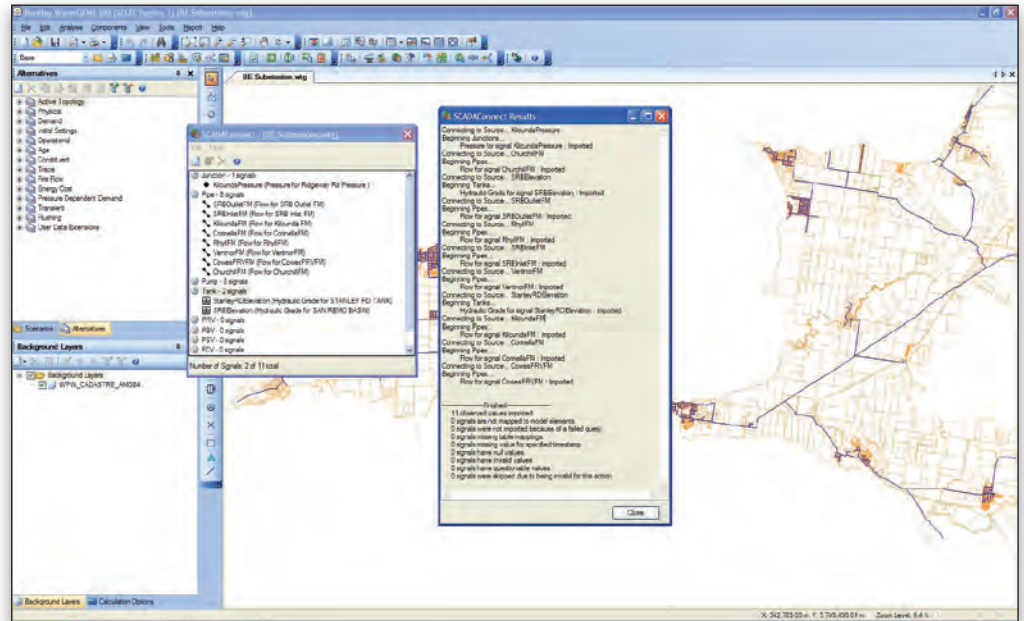
Westernport Water's WaterGEMS model importing field data captured by its SCADA system, using SCADAConnect in the software's stand-alone interface

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