

CUSTOMER CASE STUDY

Ontario Citizens Enjoy Consistent, Clean Water Thanks to an AVEVA Software Solution

Ontario Clean Water Agency (OCWA) - www.ocwa.com
Industry - Water & Wastewater

Goals

- Provide consistent high-quality water & wastewater treatment services
- Build in scalability and standardization to improve efficiency
- Control costs; do more work with fewer staff in less time
- Provide the highest levels of regulatory compliance

Challenges

- Vast service area; wide-ranging customer types and sizes
- Strict quality/compliance regulations must be met while delivering cost-effective service
- Provide continuity plus accommodate future technology integrations

Solution

- AVEVA® System Platform
- AVEVA InTouch® HMI
- AVEVA ActiveFactory™ Software
- AVEVA Historian Software
- AVEVA SCADAAlarm™
- AVEVA Historian Clients

Results

- Scalable; ideal for wide area installations and communications
- Adding new customers costs less and is accomplished in hours rather than days
- Increased location support without increase in staff
- Real-time reports have improved analysis and proof of compliance
- Changes required for regulatory compliance can be tested and deployed in one day

Toronto, Ontario – Just as water is always in motion, so is the Ontario Clean Water Agency (OCWA). Since 1993, OCWA has operated in a competitive market, providing a comprehensive array of water and wastewater services to municipalities, private sector companies and First Nations throughout the vast province that is twice the size of Texas. Each day, OCWA produces over 700 million liters of drinking water and treats about 1.2 billion liters of wastewater at 502 facilities all across Ontario.

Of course delivering clean, consistent and safe water to all citizens is paramount. After protecting public health and the environment, priorities turn to delivering value through outstanding service and cost-effective operations.

OCWA has kept these goals in sight as it has made strategic moves forward for its customers. In 1999, the agency developed its first Supervisory Control and Data Acquisition (SCADA) system. Called Outpost 5, it was designed to work across large geographic areas providing monitoring, reporting and security. Outpost 5 provides support and piece of mind to over 750 OCWA locations and is the largest such system in the North American water and wastewater industry.

“The reliability we have with the AVEVA Historian is phenomenal. Because of the store and forward feature, it eliminates any loss of data. That’s critical to the whole system because we have to report that information to our regulatory body.”

- Robert Simpson

Asset Management and Operational System Support

Riding the Wave of the Future

As part of OCWA’s commitment to continuous improvement, the agency recognized an opportunity for progress. What if Outpost 5’ could be enhanced through the integration of an off-the-shelf software solution with the current network base? Enhancing Outpost 5 with such a resource would enable the agency to operate more efficiently by taking advantage of templates and redundancy scenarios to roll out new locations more quickly with fewer staff.

As envisioned by OCWA, the right solution would also improve their competitive advantage. Customers who choose OCWA as their provider today would have the option to take control of their system – without re-engineering – if they wished to do so in the future. They would simply purchase the necessary licenses to continue to run the application.

And finally, this new approach would also provide greater continuity of service and quality control to meet regulatory requirements across the province.

Turning Vision into Action

The research and development and IT departments at OCWA converted these ideas into specifications and sought out possible partners. Through the process of evaluations and presentations, it became clear that AVEVA offered critical advantages based on similarities it shares with the Outpost 5 model. A transition to a AVEVA software solution would be eased because of scalable configuration and template structure as well as strong web-based capabilities. Plus, AVEVA Canada East, the local AVEVA distributor for the project, added applicable experience and outstanding service capabilities.

The Importance of Standardization

With over a million square kilometers of territory to cover, the agency’s teams are highly coordinated. Skilled technicians travel to remote locations for installations. Then they rely on colleagues working at the Toronto office to perform the programming, and still other groups in OCWA hubs around the province monitor and maintain the systems.

None of this would be possible without a versatile solution that enables standardization. OCWA's Instrumentation, Automation and SCADA Group is responsible for deploying all of the installations. This team found that the AVEVA highly flexible System Platform and InTouch Human Machine Interface (HMI) could be integrated with Outpost 5 as well as OCWA's existing asset management system and Process Data Collection (PDC) data base. Plus, with AVEVA software's template capabilities, the system could be replicated consistently and quickly at new installations.

Ciprian Panfilie, SCADA Developer Team Lead, explains, "It's easy because everything is developed as a template. We have a template structure at the AVEVA System Platform level, the reporting level, the security level, the graphic level, and we have templates that integrate with other packages as well. We have them all here in our lab so everything is fully tested and we maintain our standards."

This brings a major advantage when new stations are added. Before integrating the AVEVA solution, OCWA required a complex, interdisciplinary team to work for six months to a year on new deployments. Now, they can do the same work with one person in about three months. And in the case of installations where the hardware is already in place, projects are even faster; bringing the system online in large plants has gone from months to days.

Calculating Compliance

The new solution also provides extensive measurement capabilities that are necessary for regulatory compliance in Ontario. Both OCWA work teams and emergency response teams rely on the system for real-time data about pump pressures, power consumption, piping systems, chemical levels and other performance factors. The data is used to respond to immediate needs, but also to compile reports that are required by the Ministry of Environment.

George Terry, Vice President of Operations and Maintenance says, "It's not enough just to do an excellent job in ensuring compliance at all times. What you have to ensure is that you are recording and documenting that work."

The agency is required to provide regular information to the Ministry of Environment. This data, collected from numerous sources such as the pumps that deliver the water, the regulators that manage the chlorination and the labs that test the effluent, is reviewed, checked and rolled up into quarterly reports to prove compliance.

Robert Simpson, Manager, Asset Management and Operational System Support, elaborates, "We have to do this so that people are aware that they have a system that's working properly and providing them with clean, safe drinking water and properly treated wastewater. It's a continuous process."

The AVEVA Historian software enables each hub to record data in real time and convert it into reports that are submitted to the Ministry of Environment. And because of the extensive communications connections built into the system, staff throughout the operation can access the data instantaneously.

In eastern Ontario, severe weather is part of the picture and protecting OCWA's data is another area where AVEVA can help. Historian Forward is a sophisticated capability that maintains system data even if communications lines are temporarily down. Performance measurements – some taken as frequently as every five minutes – are stored locally, if needed, then forwarded to the central database once communications are reestablished. Previously, OCWA had been hampered during power outages because remote staff members were not able to access records when connections were interrupted. Now access is optimized and data is protected.

Proactive Maintenance Promotes Quality of Life

As data is collected, it is monitored by OCWA's maintenance management system. Programmed with guidelines and allowable ranges for operations, the system automates the generation of alerts and work orders. This helps OCWA deliver a consistent product and a high level of service, but also helps the agency's workers. The work orders enable crews to be proactive, since they can highlight budding problems before they progress. Additionally, management can better utilize personnel throughout the province. With the AVEVA solution's web-based desktop capabilities, maintenance can be performed remotely. Simpson puts it this way, "You can be ahead of problems before they happen. AVEVA enables you to diagnosis a situation in a timely manner using a remote desktop. The last thing you do is physically go there." So it saves fuel costs, vehicle costs and operator time.

The wide-area SCADA system also provides better work-life balance for OCWA's maintenance staff members. Because most corrections are made remotely, workers don't have to travel as much. And when system adjustments are needed, they usually can be addressed during the normal working day, eliminating more-expensive, on-call hours. But if alarms do come in overnight, staff can log on to the internet, make a correction and go back to sleep.

Flowing into the Future

The OCWA system incorporating the AVEVA software solution is considered cutting edge in North American water and wastewater management, but the agency is driven to implement further innovations. Plans include expanding web-based capabilities so that customers and partners can log on and see how their systems and services are operating, including performance information and quality measurements. Plus, OCWA envisions expanding its work with small- and medium-sized utilities so that all municipalities in Ontario have access to the latest technology for clean water service.

OCWA is also partnering with First Nations in Ontario. The agency hopes to be a resource for high-quality water and wastewater services as well as emergency capabilities.

Simpson sums it up by saying, "The most important benefit is that it provides a scalable system for our clients whether they are small or large. It incorporates the best technology and software available and gives us the total solution to meet their needs, and meet all regulatory requirements to provide safe, clear drinking water throughout the province of Ontario." And with AVEVA, that's sure to continue.