ARC VIEW

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Water & Wastewater Utilities Optimized as Single Operational Systems

By Craig Resnick

Summary

Major water & wastewater utilities continue to strive for improved efficiency, productivity, and the capability to meet newly specified sustainability goals for their operations, all while maintaining critical water quality and effluent requirements. The ability to monitor their KPI's and achieve continued process improvement is greatly enhanced if they are able to view and manage their entire system as a single interoperating system, from collection and storage, to treatment and distribution. The ability to view the entire system via a HMI/SCADA system that can bring together all real-time data, long term historical data, lab data, and business data, into an operation's portal is critical, as is the ability to navigate to the data, via GEO Scada visualization, for viewing detailed information in 2D and 3D graphics. This is done to improve the user's capability to acquire concise and relevant information very quickly, as well as for management and operations to be alerted for issues that require their attention, along with the ability to access that information anytime, from anywhere. Supplier of HMI/SCADA systems, such as ICONICS, offers software solutions for water & wastewater operations that provide the capability to view and manage an entire operation as a single interoperating system.

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Water & Wastewater Industry Drivers for HMI/SCADA

In ARC's view, the water & wastewater industry represents one of the greatest opportunities for the automation business through the next 20 years. The infrastructure needed to supply clean water and help protect water sources from human, industrial, and agricultural contaminants is sorely burdened on many different fronts. Throughout much of the developed world, including North America, Western Europe, and Japan, the existing water & wastewater infrastructure is aging rapidly and often suf-

fering from neglect. Disruptions mean "boil water" orders or no access to running water for millions of people and for industry and commercial applications. Industry sources estimate that some municipalities cannot account for up to 50 percent of the water flowing through their systems.

In the emerging nations, such as China and India, infrastructure cannot keep up with the rapid population and industrial growth. And throughout much of the world's poorer, undeveloped regions, the water & wastewater infrastructure — where it exists at all — is generally poorly operated and managed, and/or accessible only to some urban populations. According to the World Bank, approximately 1.1 billion people around the world still do not have access to safe drinking water and another 2.6 billion people lack basic sanitation.

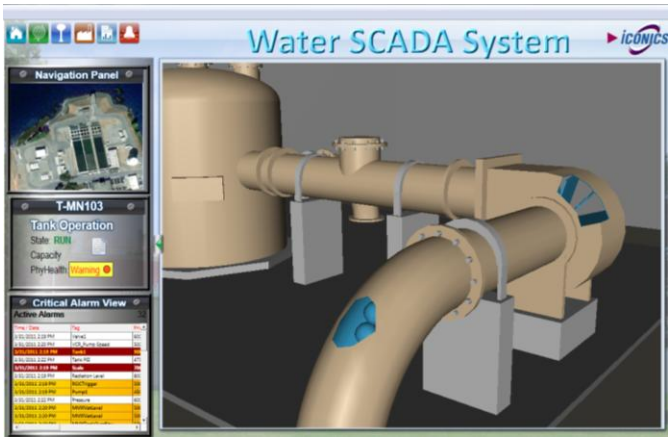
HMI/SCADA Water & Wastewater Applications

To address the needs of the worldwide water & wastewater market, today's HMI/SCADA systems leverage the impact of new technology and effective communications for knowledge transfer. HMI/SCADA systems are easier to integrate and provide vastly improved capabilities and functionalities. Consequently, HMI/SCADA systems are being used for a range of water & wastewater operational improvement applications and are most frequently linked to business processes for a variety of purposes, both internal and external to the enterprise.

Supported by expanded communication networks and improved compatibility with IT, HMI/SCADA systems provide a wealth of information and knowledge as a means to modify business processes. The effective use of today's HMI/SCADA systems requires their usage be leveraged to encompass the capability to support higher-level systems that overlap into enterprise optimization for utility and energy companies such as water & wastewater. The HMI/SCADA market is transforming due to the far-reaching impact of technology, and the fact that HMI/SCADA systems can empower a quantum change in the way water & wastewater facilities restructure their business processes to respond to real-time knowledge flow.

With change comes opportunities, and there are a number of strategies ARC recommends to water & wastewater facilities to maximize potential in the changing marketplace, including business system integration with HMI/SCADA operations, providing water & wastewater utilities with migration planning and management solutions to enable required business process changes, and making security issues a top priority.

ICONICS HMI/SCADA Solutions for Water & Wastewater



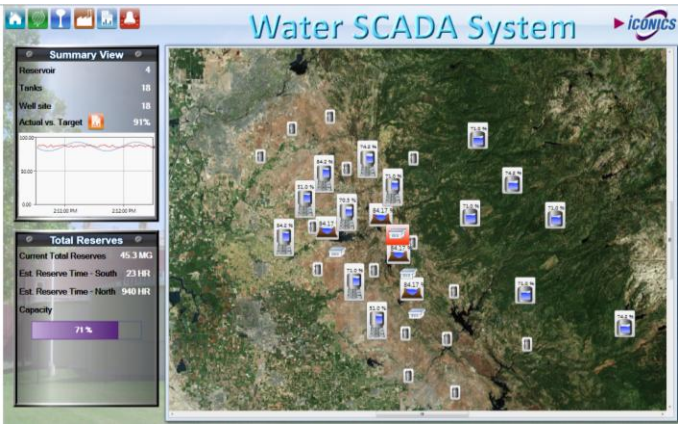
ICONICS HMI/SCADA for Water & Wastewater

To address the requirements of the water & wastewater industry, ICONICS expanded its offering of HMI/SCADA solutions, leveraging its installed base of over 1,500 installed and currently operating water & wastewater automation systems. Water & waste facilities require that operational system information is supplied to those that need it, when they need it, wherever they need it. The ICONICS solutions adapt to an increasingly shared and mobile workforce. Utilizing Microsoft Silverlight technology, graphics, trending and alarm summaries are delivered to any client, Web browser or phone. ICONICS PortalWorX expands the solution with the ability to deliver visualization within a water & wastewater facility's existing or dedicated collaboration portal utilizing Microsoft SharePoint technology.

With water & wastewater facility's looking for ways to manage their assets and sustainability operations, being able to collect and visualize the real-time information is critical, and many of these organizations do not know where to start or what tools to use. That is what led ICONICS to provide a complete water & wastewater HMI/SCADA solution that can be applied to a single plant, or utilized to integrate an entire operation.

ICONICS Tools for Water & Wastewater Applications

ICONICS HMI/SCADA solutions are not just for treatment plants, but can be utilized in all areas of water & wastewater management such as pump and lift stations, well sites, water distribution systems, industrial water systems, flood control, and desalination systems. ICONICS' GENESIS64 HMI



ICONICS GEO SCADA for Water & Wastewater

/SCADA is the core of this new solution. Designed for open connectivity via OPC Classic, OPC UA and Modbus, the software allows for the integration of equipment, plant and business data into a single unified plant operations' view and provides single operation command and control of the water & wastewater system.

ICONICS tools include GraphWorX64, which provides 2D and 3D real-time graphics for visualization of a utility's complete operation. GraphWorX64 includes the ability to import data from the latest 2D and 3D engineering CAD tools, thus decreasing the time necessary to develop user interfaces.

Another key tool is ICONICS EarthWorX GEO SCADA, which adds to the real-time user interface an ability to view data over geographical terrain maps, and provides a quick overview of multiple operations, plants, well sites and distribution facilities located anywhere across a region or the globe. By viewing system assets within the context of the terrain, operators are provided additional perspectives, such as the elevation of various components, the surrounding structures and the surrounding environment.

With the rapid increase in regulatory requirements, ICONICS Hyper Historian records all real-time data at user selectable resolutions and scan speeds. It is designed to achieve performance in excess of 100,000 values per second, utilizing standard computer servers. This meets the requirements of water & wastewater plant customers that need to maintain history of all supply and effluent, both real-time data and lab data, to adhere to regulatory requirements as well as measure and improve plant efficiency. Supplied trend viewing objects provide the ability to view and drill down to the levels of detail needed to analyze plant operations. Using ICONICS ReportWorX reporting system provides the ability to develop reports and execute on demand, on process or equipment event, or on a schedule.

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