



SITUATION ANALYSIS: Leak Detection and Management

These days, operators and managers of water treatment plants are losing sleep. Why? Because they may be losing water.

According to a report by CNN, leaking pipes equate to 7 billion gallons of wasted water daily. Many of the leaks take place underground and out of sight ... hidden until they cause a water main break or other significant problem. But it doesn't have to be this way.

By utilizing integrated automation and SCADA systems, municipalities can more quickly and efficiently pinpoint leaks – saving a precious natural resource as well as minimizing lost revenue. Acting proactively also enables municipalities to avoid the significant time and expense often associated with a more catastrophic event; minimize disruption to business and residential customers; and reduce potential public health and safety concerns about contamination.

Unlike basic PLC controls, only an integrated automation and SCADA system, such as Emerson's Ovation™ technology, gives plant operators and managers unprecedented visibility into their water distribution systems through access to comprehensive, real-time data and predictive intelligence.

More specifically, the powerful alarm functionalities and control algorithms embedded within Ovation technology make it possible to detect a potential leak area by monitoring pressures and flows against seasonal variation norms and historical trend data. An integrated control and SCADA system can be programmed so that deviations from defined, dynamic setpoints generate alarms that alert operators to a potential leak. This is a particularly important

capability for municipalities facing the retirement of experienced operators and subsequent influx of employees who may not possess the same degree of practical, on-the-job knowledge.

Once alerted to an abnormal situation, operators can then utilize the control system to remotely manipulate valves throughout the district, sequentially opening and closing them to pinpoint the leak to a specific pipe section. Once the vicinity of the leak has been determined, operators can remotely isolate the area until a service crew can intervene, saving the time and expense associated with deploying personnel into the field to manually manipulate the valves.

An integrated automation system can also be used in conjunction with Automatic meter Readers (AMRs), which pinpoint water flow problems to an individual commercial, industrial or residential building. AMR data can be imported into the control system to pinpoint potential leaks.

The experience of one small utility illustrates the benefits that can be achieved. With its integrated control system, the municipality was not only able to more quickly identify the source of a hard-to-detect leak – an 8-inch pipe located on the shoreline underneath a bridge – but has seen its water accountability jump from 60 percent to 95 percent, representing a six-month return on its investment.

Aging infrastructure is a major concern for small boroughs and large metropolitan areas, alike. Because the technology is scalable, municipalities of all sizes can benefit greatly from automated leak detection and management and, by doing so, put their concerns about water leaks to bed.

September 2014

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