Case study
Gwinnett County Department of Water Resources

Derceto aquadapt
Sustainable Water Distribution

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Director, Water Production Division,
Gwinnett County DWR,
Atlanta, Georgia.

The Greening of Gwinnett County

Where many pay only lip service to Green initiatives, Gwinnett County near Atlanta, Georgia, puts its money where its mouth is. Leading from the front is the Gwinnett County Department of Water Resources with a water sustainability strategy which is reducing the amount of water used, and at the same time reducing the energy costs and overall carbon footprint of the water distribution system.

Serving a rapidly growing population of more than 800,000 over an area of 437 square miles, the Gwinnett County Department of Water Resources near Atlanta Georgia has a production capacity of 225 million gallons a day. All of this supply is from Lake Lanier via the Shoal Creek Filter Plant and the Lanier Filter Plant via 18 pump stations and 17 finished water storage tanks including clearwells.

The system's significant challenge, shared with other water providers in the region, is allocating a limited long-term water supply among a growing number of users. Challenges by the States of Alabama and Florida to water contractual developments may limit water supply after 2012.

Meeting this challenge involves a two pronged strategy: on the one hand public education and incentive programs encourage water efficient appliances and water use practices; on the other hand, significant focus and investment on building and operating the most efficient storage and distribution network.

Quantifiable success

One of the most visible and quantifiable successes in the drive for increased efficiency is the implementation of Derceto's Aquadapt software, which is now delivering energy cost savings approaching ten percent per annum, with further savings forecast as the system is further tuned for maximum efficiency.

Leading the Derceto Aquadapt optimization project is Neal Spivey, Director, Water Production Division, Gwinnett County DWR – a 20-year veteran of campaigns to drive water use efficiency, a past president of the Georgia Water and Pollution Control Association, the Georgia Water Wise Council, and past chair of the Georgia Section of the American Water Works Association (AWWA). Since 1992, Neal has been active in AWWA's Water For People program, helping to provide safe drinking water to communities in Honduras. He is also a member of the Water Environment Federation and the International Ozone Association. He has received numerous awards from both State and national organizations for his work in the field of water supply.

In the Fall of 2006, Neal Spivey commissioned CH2M HILL and Derceto to carry out a feasibility study which concluded that there was the potential for Gwinnett DWR to realize significant savings and operational benefits from implementation of Derceto's Aquadapt real-time online energy management software. Energy cost savings were projected to be approximately 11 percent of the energy costs. Based on these expected benefits, a Detailed Design contract was awarded to CH2M HILL and Derceto in 2008.

Additional benefits

The Detailed Design phase of the Gwinnett County DWR Aquadapt implementation was completed in March of 2009 and showed additional savings and benefits, leading to the decision to proceed immediately into a full implementation project for the entire water distribution system. The Derceto Aquadapt implementation was completed by mid December 2009.

At that point Neal Spivey was able to cautiously confirm that: "We have completed Aquadapt installation, commissioning and training. Derceto's engineers were most recently on-site for about five weeks getting our operations staff comfortable with this new technology. This software is now controlling production plant rates, raw water and high service pump scheduling, booster pump station operations, and filling tanks in the water distribution system. It has quickly become a very important part

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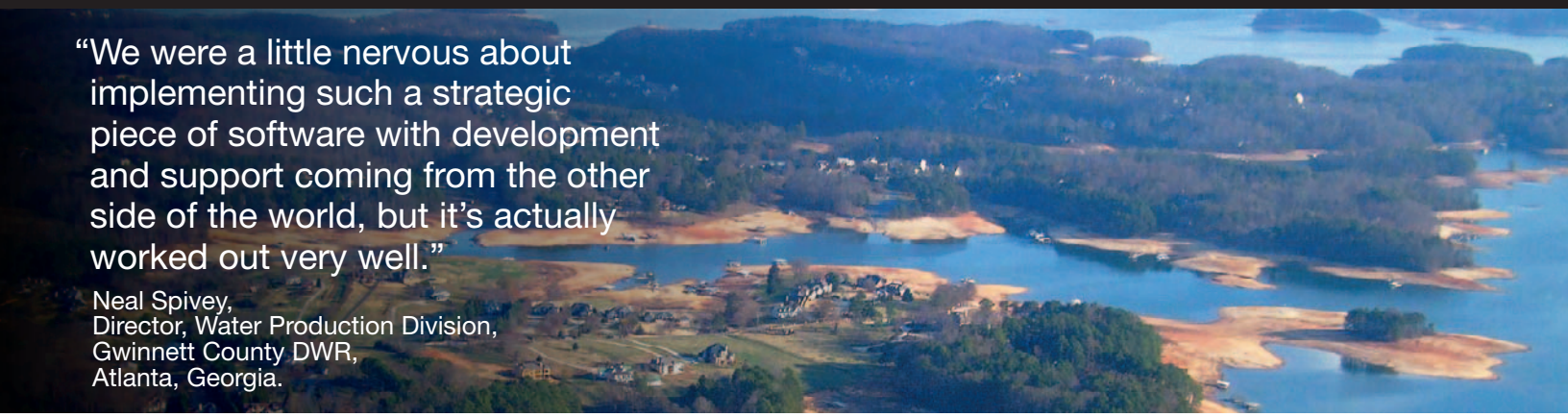

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of the water delivery process to Gwinnett County residents."

By September 2010, Neal Spivey was sufficiently confident in the success of the project to talk further about the implementation, the benefits, and the overall success of the project.

"One of the biggest benefits from Aquadapt is operational consistency," he says.

"We had guidelines for our plant operators before to ensure we had tank levels at a certain point in the early morning with tanks being filled overnight. But each operator had their own idea about the best way of achieving that. Derceto's Aquadapt has allowed us to get the water where we need it ready to meet demand in the most energy efficient way possible. This is a major step forward compared to relying on 24 people, each with their own idea."

Reality vs forecasts

The real cost savings, compared to forecasts, are also now being quantified.

"We have saved $174,000 from January through July compared to last year. In the first couple of months we saw a $30,000 difference in power bills. That's between eight and 10 percent. That was when we were still debugging the system. We are still tuning the system and I am confident we will further improve. During Summer, water demand and power demand are the highest and we are expecting even more savings. We're confident that we will not only achieve the savings and benefits indicated by the feasibility study, but will in fact go well beyond that.

"Since the implementation was completed seven months ago our staff have been enthusiastic in getting behind the new Aquadapt system, evaluating the differences and recommending more changes which will result in even further savings.

"Savings are coming from being able to evaluate pump curves and system conditions and select the best pump at the best time. Operators can do that but are much more hit and miss. We're also improving water quality as the software is programmed to turn over water in storage tanks at regular intervals with deep draw cycles emptying and filling the tanks to reduce water aging."

Neal Spivey admits that there were some initial concerns about the level of support for Derceto's Aquadapt. "We were a little nervous about implementing such a strategic piece of software with development and support coming from the other side of the world," he says. "But it's actually worked out very well."

"The Derceto team spent a week doing the evaluation, setting system levels and generally understanding our system and how we operate. Then they went away and tweaked the software. When the implementation began in November 2009, the Derceto implementation team were here working out of our offices and the process was managed very smoothly. Even now, using the work request system online, we get almost immediate response. We're completely satisfied with the quality of service. They got to know us and it has all worked out extremely well.

"We've been really impressed with the whole Derceto team. It's amazing to me that they could come into our business, grasp all the fundamentals, and implement such a sophisticated solution so quickly and to such a high degree of accuracy. They really do have a really good team of bright young people with an amazing grasp of the technology." Neal Spivey says.

About Derceto and Aquadapt

Derceto's Aquadapt software slashes energy costs, lowers carbon emissions and boosts water quality and asset efficiency.

Aquadapt is the proven and industry-leading, real-time operations optimization solution, purpose designed for treated water distribution. Installed at leading water utilities around the world, Aquadapt is delivering measurable energy savings – averaging 15 percent – which amounts to millions of dollars per year for many customers.

Integrating with existing SCADA systems, Aquadapt reads live field data to instantly create the most effective pump valve and water treatment plan schedules, adapting them in real time to changes in demand, energy pricing and unforeseen events in the network – ensuring water is delivered where it is needed at minimum cost and maximum quality.

The user-friendly interface makes it easy for operators to step in at any time to take control, schedule maintenance or brush up on operational skills.

Aquadapt delivers on the key tenet of sustainability: it saves more than it costs, in money, in time, and in resources.

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