ANCHORING DATA in Anchorage

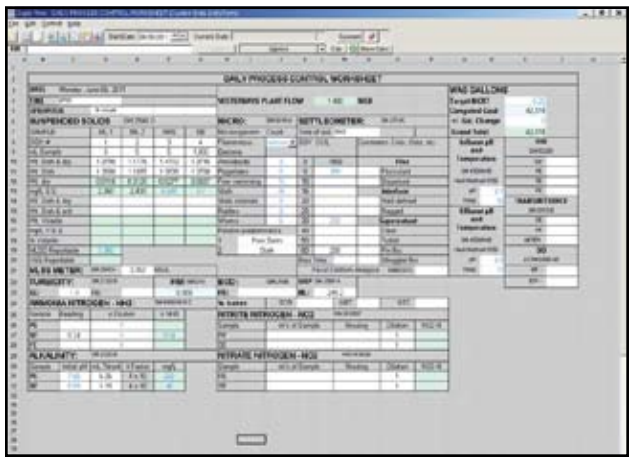
By Chuck Scholpp

The Anchorage Water and Wastewater Utility (AWWU) is the largest water and wastewater utility in Alaska, serving Anchorage, Chugiak-Eagle River, Peters Creek, Eklutna and Girdwood. AWWU collects water from two major surface watersheds—Eklutna Lake and Ship Creek—and several deep underground wells. The region is blessed with abundant, pristine water sources that industries and more than 260,000 people rely on.

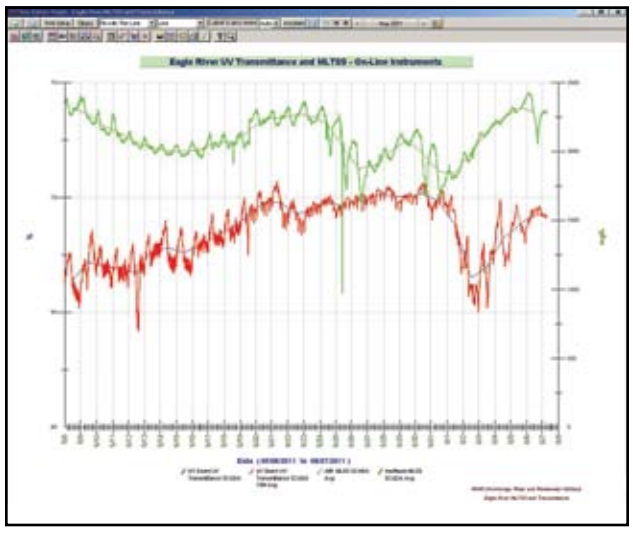
Water and wastewater utility installs information management software

AWWU operates two water treatment facilities (WTFs), three wastewater treatment facilities (WWTFs), water distribution and wastewater collection systems, a water quality lab and an industrial pretreatment program. Excellence through innovation and a commitment to continuous improvement are the overarching goals. Sustaining excellence requires technologies that automate data gathering and analysis so operators, supervisors and upper management can focus on their jobs and make process improvements and business decisions based on trusted information.

In short, AWWU has implemented Hach's Water Information Management Solution (WIMS) to ensure that the utility achieves the service excellence it strives for and to "just make life easier" for everyone working in its facilities, according to Treatment Division Director Craig Woolard.



A daily process control worksheet.



Measuring UV transmittance and MLTSS at Eagle River.

Business Situation

AWWU's Asplund WWTF is designed to process 58 million gal per day (mgd). The Eagle River WWTF processes 2.5 mgd, and the Girdwood WWTF handles about 1 mgd.

AWWU's Eklutna WTF is designed for 35 mgd and the Ship Creek WTF for 16 mgd. The utility's water distribution system comprises approximately 800 miles of water distribution, 60 pressure zones, 60 million gal of storage and between 150 and 200 remote facilities.

Manually entering data from multiple spreadsheets was highly inefficient, and preparing accurate compliance reports was labor intensive. Data security was in question, and data validation was excessively time consuming. AWWU needed a solution that could standardize data collection, storage, analysis and reporting across its organization and also be tailored to meet the varying needs of each facility.

Compliance, reporting and sustaining business operations as well as enabling growth are essential. AWWU identified that it needed a system that would help extend its stellar compliance history while simplifying analysis and reporting. AWWU sought a solution that would give all of its personnel the tools they needed to work smarter—not harder—and to focus efforts on high-value tasks.

Solution

Woolard framed up the challenge he and his colleagues face each day: "We have thousands of pieces of information. It's almost an impossible endeavor to keep up on how everything operates or works in conjunction with other parts of the plant. With the WIMS system, you see it all in a useful way."

In AWWU's system, data from all of the facilities flows to the WIMS central database, which is an enterprisewide system. It uses the data to generate reports on key performance indicators, process control variables, energy use, and chemical and polymer consumption. In place for approximately six months, the solution already is helping AWWU operators better understand where they need to direct efforts to improve performance.

Approximately 60 people use WIMS regularly, and users vary in roles from Level 1 to Level 4 operators, to foremen, to senior management, to personnel in accounting and finance. AWWU has deployed the solution at each facility, tailoring it to meet each person's varying needs.

"The fundamental problem it solves is correlating and visualizing data from a hundred different spreadsheets," Woolard said. "We can enter the data into the database, and then every user can pull it out in a customized way."

Another feature is its remote accessibility to data. Now secure access is available via the Internet from any location, 24 hours a day, every day.

"I have been pleasantly surprised at the buy-in we have received from the newest Level 1 operator to the most experienced Level 4 operator," Woolard said. "Showing our team right off the bat that you could take a whole year's worth of parameters and report them within seconds really helped people to buy in quickly."

Benefits

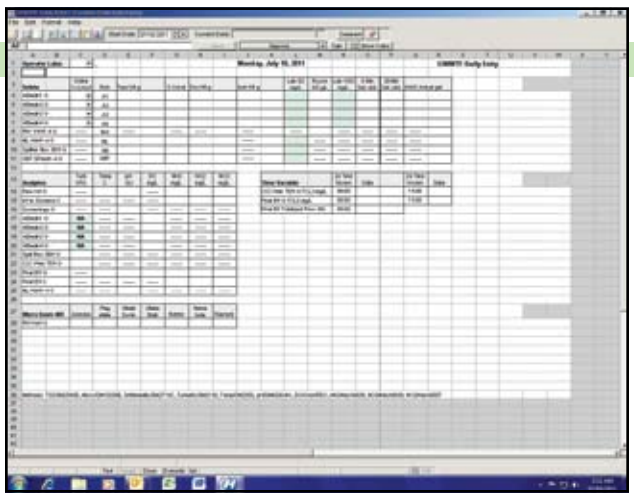
According to Rob Gustafson, superintendent of the AWWU Water Quality Group, "The No. 1 difference that implementing WIMS has made for us is that we now have time to actually analyze the data we collect." SCADA data is aggregated from all sites into a central historian.

Secure, validated data. Validating data from all the facilities had been a brutally difficult task, as was validating information flowing from disparate sources (e.g., instruments, SCADA systems, field and laboratory) that operators entered manually into a myriad of spreadsheets. Furthermore, the data was not secure. The spreadsheet contained 365 tabs for daily data that was then reconciled into monthly or yearly reports,

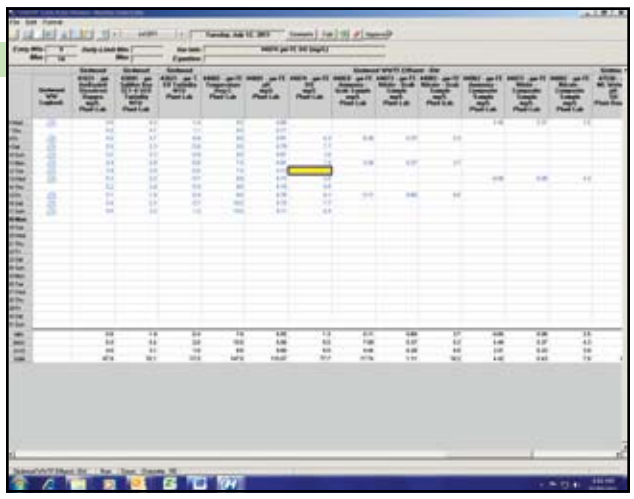
allowing significant room for error. Spreadsheets often were corrupted, and the utility did not have a formal review and approval strategy because it was impractical in light of the volume of data and the ongoing need to run the plants.

"With WIMS, the superintendents of each facility can look at the data on a daily or weekly basis and validate and approve it," Woolard said. "Now we know the numbers are correct and we can use them for analysis and compliance reporting with confidence."

Process improvements and operational transparency. The ability to verify data easily from the thousands of sources and in differing formats has improved quality assurance and quality control, and it has led to insights that otherwise probably would not have been made.



Girdwood's data input screen.



Girdwood's review screen.

"We found that we had misplaced decimal places on a couple of values," Gustafson said. "Seeing the data allowed us to quickly resolve that issue. The issues weren't obvious, but in the process of implementing WIMS, we asked a number of questions that we would never have asked and found a few things that weren't quite right."

Using the trending function to analyze and compare information in unique ways has helped manage the activated sludge process. Having WIMS to analyze AWWU's activated sludge treatment process adds another tool to the utility's toolbox for analyzing the process control of the activated sludge system for ammonia removal and effluent turbidities, which, according to Woolard, "is extremely important because the activated sludge process is critical to our compliance."

Waste sludge is dewatered and incinerated, thus WIMS helps save time with managing the process and generating the air report.

Cost savings for new equipment design. As demand increased and the plant needed to scale up to meet that demand, engineering firms were called on to specify new equipment. AWWU has spent thousands of dollars with consulting firms that compiled data from spreadsheets and created reports and trend analyses that were used for design purposes.

"When it comes time for the next design project to upgrade, we'll be able to provide the data quickly and efficiently, with confidence in its accuracy," Gustafson said. "And that will save the utility a lot of money."

Mission support. Superior data collection, visualization and accuracy are all significant advantages for AWWU, providing information needed to optimize processes and more easily address compliance and reporting. Perhaps most importantly, WIMS has empowered the entire staff to focus on higher-value activities.

"The fact is, it adds value to the organization," Woolard said. "It helps us advance as an organization and provide better service to the customer." WWD

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