



**Central Colorado Water Conservation District Automates Water
Well Flow Data With RemoteCONNECT Remote Telemetry System**

Case Study

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In a continuous effort to develop, conserve and maximize the efficiency of water distribution in the state of Colorado, the Central Colorado Water Conservation District (CCWCD) recently requested the support of California-based irrigation flow meter supplier McCrometer to help automate the collection of water well flow data.

CCWCD has been in operation since 1965. The district covers an area of approximately 750 square miles and delivers 74,000 acre feet from 1000 wells. CCWCD's policy and goals are established by a 15 member board of directors who have been appointed by state district judges.

The Problem

Like many areas of the U.S., northeast Colorado suffers from periods of drought that make water a critical and valuable resource for local agriculture and surrounding communities. Over the past 45-years CCWCD has completed a series

of water resource projects to improve supply. At the same time, the district also is tasked with managing the efficient use of water.

The staff at CCWCD and McCrometer began discussions in 2008 about the district's need for automated water flow data collection. The district's staff was interested in developing a way to automate water flow meter data collection that would increase the accuracy of its data and at the same time free staff for more critical activities.

With more than 55-years of agricultural irrigation flow measurement experience, as well as expertise in process control, McCrometer began interviewing other irrigation districts to discover they had similar needs. Next, McCrometer assembled a special team within its R&D group to find a solution. The multi-disciplinary team at McCrometer suggested the development of a wireless remote telemetry system combining propeller flow

meters, low power transmitters, wireless radio, satellite and Internet technologies.

The Solution

McCrometer began installing the first units of its RemoteCONNECT Remote Telemetry System for CCWCD in Colorado in late 2009. By installing telemetry on flow meters at irrigation wells to boost water resources, CCWCD is creating one of the most sophisticated agricultural water data collection systems in the nation.



RC50 RemoteCOM unit of the McCrometer RemoteCONNECT Remote Telemetry System

In the new program, CCWCD is equipping over 200 McCrometer propeller flow meters with RemoteCONNECT technology that digitally records and

transmits information about water usage. This data will help CCWCD manage its member's water resources, increasing available supply through improved system efficiency.

The RemoteCONNECT Remote Telemetry System is a turn-key wireless remote monitoring system with 24/7 capability, which reduces costly manual data collection. McCrometer provided CCWCD a single go-to source for automated flow measurement system hardware, software, installation, training, support and field service.

RemoteCONNECT comprises all the components necessary for global web-based data collection from McCrometer's Mc® Propeller Meter, as well as meters from other manufacturers. The system installed for CCWCD includes: a RemoteCOM Telemetry System that supports up to 25 RemoteCOM flow meter radio transmission units, which feed data to a single Satellite Base Station that sends data to a secure web server.

With RemoteCONNECT, one satellite transmitter supports up to 25 propeller meters and makes the system a highly economical solution for multiple meter sites and large distributed irrigation systems. The system is expandable over time, and can be configured to provide soil

moisture, water level, water salinity, rainfall and other data.

McCrometer's RemoteCONNECT Remote Telemetry System provides the staff at CCWCD with an online interface that is a secure-access, web-based irrigation management tool. It features an easy-to-use graphical-user interface that provides flow rate and totalizer data for each propeller meter with a wide range of sophisticated monitoring, alarming and control tools.

Web access to flow data also eliminates the need for local office data servers and modems. Remote data can be collected at customer specified intervals from 30 minutes to 24 hours. A Google Earth view of the site is available too.

With McCrometer's online RemoteCONNECT interface, the staff at CCWCD can monitor water-use quotas, set alarms to indicate high/low usage rates, look at well site images and track data by individual Farm number. Individual flow meters can be accuracy checked for hours flowed, volume and size of meter. Low battery alerts are provided as well. Graph and trend line analysis tools are built-into the system.

Comprehensive availability of flow data tells CCWCD irrigators how water is applied to ensure accurate billing and water allocation records. This information alerts

irrigators when they are close to exceeding allocation limits. Notifications can even be provided to multiple specific users via email and text messaging or paging.

To simplify the transition to remote telemetry, the RemoteCONNECT Remote Telemetry System has been designed by McCrometer to retrofit easily with installed Mc Propeller flow meters. The system can be installed by trained McCrometer technicians without flow meter removal under flowing conditions and does not require external power.

The RemoteCONNECT Remote Telemetry System is designed with rugged industrial components developed for outdoor use under harsh conditions, including bad weather with wide variations in temperature and high humidity. The system component materials include polycarbonate, high-impact electrical boxes with tamper-resistant security screws that discourage vandalism.

The Results

"Through measurement efficiency, we save water, and the telemetry makes this possible with a constant data flow of well pumping information." explains Ruthanne Schaffer, CCWCD Senior Water Accountant.

Though irrigation information is valuable to accounting, there are logistical benefits to a telemetry system. "With 200

plus wells equipped with telemetry, I can dedicate more time to other duties at Central. This project saves both time and money,” says Rod Asmussen, Meter Program Administrator.

Because ultra-efficient accounting can create water without the need of a new reservoir or large water purchase, the project received congressional attention in the 2008 omnibus bill. “Since we presented the project, the congressional delegation has been excited about how we’re managing water here... We received strong support from former US Senator Wayne Allard and US Department of the Interior Secretary Ken Salazar” said Greg Hertzke, CCWCD External Affairs Manager. “Now we’re working with the Natural Resource Conservation Service and the Environmental Protection Agency to complete the funding transfer.”

CCWCD’s telemetry project is still developing, and soon will expand in scope. Now the program is looking to add more wells, and include study parameters like water quality. Additionally, the project will soon allow irrigators to log onto the CCWCD web site and view a record of their pumping.

As helpful as the technology will be, further expansion requires additional funds. “Now Central plans to work with US Senator Mark Udall, US Senator Michael Bennet and Congresswoman Betsy Markey to locate

new funding sources,” says Randy Ray, CCWCD Subdistrict Operations Manager. CCWCD will be equipping meters throughout the year, and expansion will continue throughout 2010.