Site Management Solution

RUBICON™

Turlock Irrigation District chooses Rubicon for accurate flow measurement in California's San Joaquin Valley

Situation

The introduction of California's Water Conservation Act of 2009, known as SBx7-7, requires irrigation districts to increase water measurement accuracy, improve reporting, and introduce volumetric water pricing.

Turlock Irrigation District (TID) had over 1,200 manual slide gate supply points, each serving an average of six properties on a rotational basis. The approximate volume of water delivered was determined by inferring flow rate from the gate's opening height and multiplying this by order duration. Accuracy was dependent on maintaining constant water levels – both upstream in the supply channel and downstream on each of the farms served by the supply point. Even when channel water levels and gate opening remained constant, varying farm topography and operating practices meant there was considerable downstream water level variation across farms. The same supply point could return dramatically different flow rates depending on the property being supplied. Flow measurement was not accurate enough to meet the requirements of SBx7-7 and would have led to inaccurate billing.

This prompted TID to look for accurate metering solutions, beginning with a pilot study to test Rubicon's FlumeMeters™, SlipMeters™ and meters from two other companies for accuracy, ease of installation, maintenance requirements and overall cost.

Solution

While accuracy was found to be similar across all meters tested, TID chose Rubicon as the primary meter provider because of lower installation and maintenance costs. In most cases, the in-pipe meters tested could only be installed on the farmer's property, making installation and troubleshooting difficult and expensive. They also commonly experienced blockages from weeds and rubbish, which required maintenance crews to travel to the site to resolve the problem.

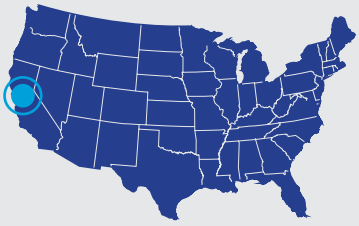
FlumeMeters and SlipMeters feature Sonaray™ ultrasonic flow measurement, which is accurate to ±2.5% without the requirement for extensive upstream or downstream flow conditioning. This uniquely enables them to be installed in-channel, directly upstream of control gates and outlet pipes. In addition to flow measurement, SlipMeters have an integrated control gate.

> **"One of the biggest contributing factors in choosing the Rubicon meters was they remained in-channel, whereas the other meters had to be located in areas that we lacked legal access."**
>
> Wes Miller, Supervising Engineering Technician, Turlock Irrigation District

SlipMeters and FlumeMeters fix to channel walls, making them more accessible for maintenance than alternatives

USA

Turlock, California



Customer profile

Turlock Irrigation District (TID) provides irrigation water to farms in Stanislaus and Merced counties in the Central Valley of California. TID was California's first irrigation district and today supplies water to 58,600 hectares of land, serving 4,500 customers through 400 kilometres of gravity-fed channels. Crops grown in the area include almonds, corn, oats and alfalfa.

Solution components

Hardware

- FlumeMeter x78
- SlipMeter x121

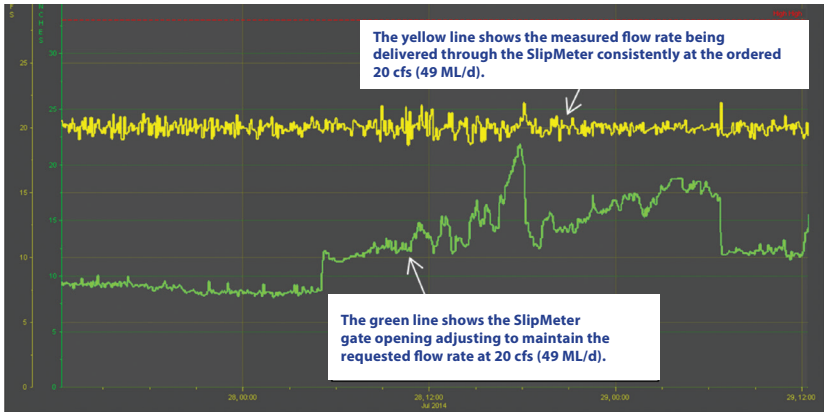
Case Study

TID installed SlipMeters at 121 sites serving 120 hectares or more and FlumeMeters at supply points serving between 12 and 119 hectares. The FlumeMeters are mounted to slide-in frames fixed to the channel wall, directly upstream of existing manual supply point gates – making installation quick and easy and keeping civil costs low.

The FlumeMeter's slide-in frame enables it to be easily installed

Results

TID now has a meter fleet that comfortably exceeds the SBx7-7 accuracy requirement of ±5%, and customers can be confident that they are being fairly charged under the new volumetric pricing structure. Remote management using TID's third-party SCADA system means that the required reporting data is automatically recorded and readily at hand. With flow to half of the district's irrigated land being managed by SlipMeters, service has also improved. The SlipMeter´s integrated control gate adjusts throughout a delivery to maintain a constant flow rate, even with varying upstream and downstream water levels.



SlipMeter gates constantly adjust to deliver the requested flow rate, even with fluctuating downstream and upstream water levels

Customers supplied by SlipMeters can now irrigate more efficiently because they can count on a constant flow rate. These constant flow rates in turn improve channel operations by reducing water level fluctuations created by the manual gates they replaced, ultimately improving service for all customers while streamlining operational needs.

A FlumeMeter mounted directly upstream of a manual supply point gate

> **"Installing 121 SlipMeters covering 30,000 hectares will provide a better level of service to our customers and reduce fluctuations system wide which will ultimately save water."**
>
> Wes Miller, Supervising Engineering Technician, Turlock Irrigation District

About Rubicon Water

Rubicon Water delivers advanced technology that optimises gravity-fed irrigation, providing unprecedented levels of operational efficiency and control, increasing water availability and improving farmers' lives.

Founded in 1995, Rubicon has more than 35,000 gates and meters installed in TCC™ systems in 15 countries.

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