Site Management Solution

RUBICON™

Case Study

CEABC now reliably supplies water to two million people in Northern Mexico without impacting irrigation

"Rubicon's gate and SCADA solution provides automatic flow control and has stabilized our water intake from the Canal Reforma." Ing. J. Guadalupe Salazar, Operations Manager

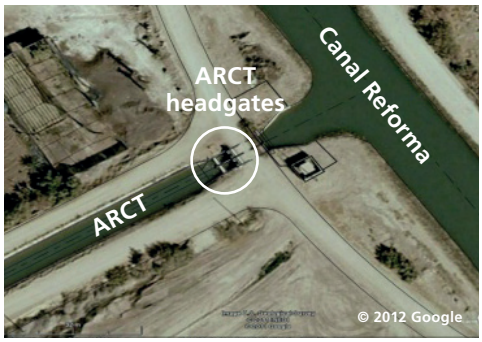
Situation

The Baja California State Water Commission (CEABC) manages the headgates of the Colorado River – Tijuana Aqueduct, locally referred to as ARCT. The ARCT is the primary water supply for nearly two million people on the Pacific coast of Northern Mexico. The ARCT spans over 75 miles before providing water to the cities of Tecate, Tijuana and Playas de Rosarito.

CEABC diverts up to 212cfs from the Canal Reforma irrigation canal to supply the ARCT. The upstream supply of water in the Canal Reforma is adjusted frequently to meet the needs of the downstream irrigation district, causing the water level in the Canal Reforma to vary dramatically. In order to maintain a constant flow through the ARCT headgates, CEABC operators needed to make frequent site visits to undertake a lengthy process of repeated manual flow measurements and adjustments to the existing radial headgates until the correct flow rate was restored. If these adjustments were not made, the irrigation district further downstream on the Canal Reforma suffered from overtopping or undersupply.

CEABC had to measure and control flow into the Tijuana aqueduct without the risks and delays of manual operation. Ideally they would also have the ability to remotely monitor and control the headgates.

Colorado River – Tijuana Aqueduct (ARCT)



Aerial view showing Canal Reforma irrigation canal and ARCT headgates

Solution

The solution chosen was to install two remotely managed 7.6ft x 8.0ft FlumeGates™ to replace the existing manual radial gates. The FlumeGates were sized to check an upstream water level depth of 7.6ft, meeting the maximum flow requirements of the site (212cfs) while fitting within the existing concrete structure so that minimal civil works were required. Since the ARCT is the primary source of drinking water for millions of people, the new solution had to be installed quickly to minimize any supply disruption.

Mexico

Mexicali, Baja California

Customer profile

The Baja California State Water Commission (Comisión Estatal del Agua de Baja California or CEABC) is a state agency that is responsible for urban water management, quality and distribution throughout the Baja California state.

Solution components

Software

SCADA CONNECT

Hardware

FLUMEGATE

- FlumeGate x 2

Integrated equipment

Local display pedestals, additional HMI touch screen interface, ultrasonic water level sensors, SCADA communication system, 120V AC charged battery back-up system.

Services

Installation, gate calibration and commissioning, operational training and basic maintenance training.

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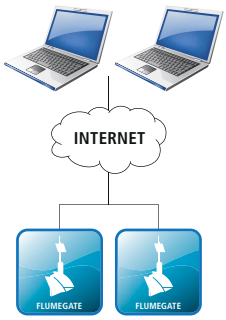
Remote monitoring and management

The FlumeGates are remotely managed using a cloud deployment of Rubicon's SCADAConnect® software. The gates are connected to the internet via a cellular network and CEABC can monitor and adjust flow rates using and a standard web browser, avoiding the need to install costly servers and specialist communications infrastructure.

Monitoring of the site is simplified through the use of SCADAConnect's on-screen and SMS alerts which indicate if there are operational problems.



SCADAConnect cloud management

Automatic flow control

The CEABC operator is now able to remotely set a desired flow rate. Using their integrated level sensors, the FlumeGates automatically make opening and closing adjustments to maintain the desired flow rate, responding immediately to any level variation in the Canal Reforma.

Accurate flow measurement

The FlumeGates provide CEABC with instantaneous flow measurement and accumulated volume data. This information can be viewed on each gate's display screen and remotely via SCADAConnect as shown below.

SCADAConnect screens used to manage the ARCT headgates

Results

CEABC used to be contacted by the irrigation district on the Canal Reforma downstream of the ARCT headgates every two weeks with complaints about canal overtopping or undersupply. After implementation of Rubicon's Site Management Solution, CEABC has not received a complaint in over a year. CEABC can be sure of meeting the water supply needs of nearly two million people without affecting the downstream district. Changes in water level in the Canal Reforma no longer adversely affect supply to the ARCT and changes in demand can be met rapidly by remote control. The reduction in site visits has had the additional benefit of savings in personnel costs and vehicle maintenance.

About Rubicon Water

Rubicon Water delivers advanced technology that optimizes 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 15,000 gates installed in TCC® systems in 10 countries.

Results summary

- Reliable water supply for two million people
- Accurate real-time flow and volume measurement
- Flow rates automatically maintained
- Improved supply to irrigation districts along the Canal Reforma
- Low cost remote management

"The FlumeGates have simplified operations; our operators no longer need to make site visits to make flow adjustments."
Ing. J. Guadalupe Salazar, Operations Manager, CEABC

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