
Lower Colorado River Authority

Lower Colorado River Authority Pilots Automated Metering Program Using Cellular Connectivity - A Sierra Wireless® Water Management Solution



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CUSTOMER CRITICAL CHALLENGE

- Remote data collection of water usage from underground distribution points
- Required persistent wireless connectivity and remote monitoring capabilities for accurate measurement and billing

SOLUTION

- AirLink® gateways provided reliable cellular communications for pilot program testing cost effectiveness of remote meter reading solution

BENEFITS

- Uninterrupted connectivity for access to critical water level and usage data
- Increased productivity and safety for field staff collecting meter head readings
- Seamless integration with existing monitoring equipment
- Improved customer satisfaction through accurate billing of water usage

Business Challenge

LCRA's wholesale water division was interested in testing the cost effectiveness of a wholly automated remote monitoring solution to read bulk water meter distribution points. They enlisted engineers from the agency's hydrologic services department to develop a pilot program at two community locations in order to eliminate manual data collection.

The purpose of the meter automation project was twofold: accurate measurement of water quantities delivered to each customer and real-time monitoring of water flow to identify potential issues before any incidents occur.

LCRA's wholesale water customers have underground metering vaults that use mechanical registering devices to record the quantity of water delivered. To obtain the actual number of gallons of water delivered to wholesale customers, an employee must visually inspect mechanical metering devices that are inside underground utility vaults. Manual meter reading is both time-consuming and dangerous. Employees are required to travel across a wide geographic area at regular intervals and enter the underground metering vaults to acquire the gallons per hour readings from each meter head.

To eliminate the need for a time-intensive site visits, the LCRA has leveraged a cellular data solution with broad enough coverage to match its water distribution network. At critical junctions in the water network, the LCRA has automated data loggers that dynamically track water flow. The LCRA uses a rugged, intelligent cellular gateway, connected to the data logger with a serial connection, to access the data from the meters. The data is sent to a central office server, where it can be analyzed for water flow tracking and predictive analysis to identify potential issues.

Sierra Wireless AirLink® Solution

LCRA's cellular provider recommended upgrading to the Sierra Wireless gateways to advance the connectivity and remote monitoring capabilities of its pilot program. Working with Sierra Wireless provider Industrial Networking Solutions to program their devices, LCRA rolled-out the gateways with "no issues of any kind".

"The devices just flat out worked," explained Andy Verrett, senior systems technician at LCRA.

LCRA discovered one of the biggest advantages of deploying a cellular data solution with intelligent AirLink gateways was that the solution didn't require the replacement of legacy equipment; the AirLink cellular devices integrated very well with LCRA's existing monitoring equipment, saving the authority an enormous amount of time and investment for the system upgrade.

The gateway is a robust communications platform for telemetry and SCADA that simplifies management of remote assets. Class I Div 2 certification and embedded machine protocols make the gateway ideal for industrial applications, such as energy management. Powered by ALEOS® embedded intelligence and managed by AirLink management software, the gateway enables remote configuration and troubleshooting, virtually eliminating service calls to remote equipment, resulting in a quick ROI.

“The intelligent cellular gateways that we integrated with our data logger solution are incredibly reliable,” said Verrett. “We have had no connectivity problems to speak of; although we experience occasional outages due to the data logger, the cellular equipment is rock solid.”

Results

LCRA has virtually eliminated field trips to its pilot meter head locations. The agency now has the capability to remotely collect daily data from meter registers attached to underground distribution points and monitor hundreds of thousands of gallons per unit to measure usage and verify accurate billing to its wholesale customers.

With minimal capital investment, LCRA was able to advance the remote monitoring of its infrastructure and the thousands of gallons of water per unit flowing within. In addition to providing a cost effective data collection solution, the Sierra Wireless cellular gateways also provides the following benefits:

- **Reliable connectivity**
 - ALEOS intelligence provides “always-on” and “always aware” connectivity required for critical fixed and mobile data applications.
- **Increased productivity and safety**
 - Eliminates the time and potentially hazardous effort required for an employee to manually check a remote distribution point.
- **Quick ROI**
 - ALEOS-powered devices replete with legacy industrial protocols are seamlessly integrated with legacy data logging equipment, enabling a system overhaul without large capital investment.
- **Seamless solution integration**
 - In combination with ALEOS, AirLink management software allows for quick and easy device configuration, as well as troubleshooting of remote gateways in the

field.

- **Advanced monitoring**

- Enables intelligence at the endpoint by utilizing advanced digital protocols at both the polling site and data center.

- **Improved customer service**

- Provides real-time data for accurate billing and water level management.