

Featured Project

Contra Costa Water District Revenue Metering Data Acquisition

Concord, California

Contra Costa Water District serves over 1/2 million people in the East San Francisco Bay Area, plus large industrial accounts represent approximately 1/3 of the water use within the District. The District is a sophisticated user of automation both for operation and maintenance purposes, as well as for revenue metering and billing.

ArcSine Engineering, working closely with District personnel, designed and implemented a state-of-the-industry remote data acquisition system for revenue metering. This project included the following:

- Ethernet communications via cellular modem to provide high bandwidth while utilizing existing communications infrastructure.
- Reliably acquire flow and other data from 27 remote sites, and store it in a dedicated data acquisition historian.
- Transfer "qualified" data to the District's billing system.
- On loss and restoration of communications, acquire missing data.
- Provide District billing staff data historian tools to respond to customer inquiries, troubleshoot discrepancies.

The project used a Programmable Automation Controllers (PAC) and a SCADA (HMI) software package, leveraging products and systems conventionally used in plant monitoring and control to this unique application. ArcSine's staff used advanced data acquisition techniques, and capitalized on the PAC's features to develop a sophisticated and fault-tolerant data acquisition application.

Project Highlights:

- Data acquired at 60-second intervals.
- Automatic data retrieval and repopulation on loss and restoration of communications.
- Data are archived on local memory and on flash drive for extended outages. Storage capacity exceeds 10 years of data.
- Use of programming features and techniques outside of standard Programmable Logic Controller (PLC) applications.
- Sophisticated programming techniques to deal with asynchronous nature of data logging.
- Use of graphical and database package for management of acquired data on a central data acquisition server.
- One-way data transfer by the District's server, to assure security.

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