



**ENTERPRISE
AUTOMATION**
A TETRA TECH COMPANY

PROJECT PROFILE

Groundwater Distribution System

City of Fresno

Client background

The City of Fresno operates a large potable water system that delivers drinking water to roughly 500,000 residential, commercial and industrial customers over 114 square miles. They also operate numerous treatment facilities that treat ground and surface water for residential and commercial use. A unique aspect of the City's system is that pressure is entirely maintained by pumping zones, instead of elevated reservoirs and holding tanks.

Project background

The City of Fresno's Groundwater Distribution SCADA System, which is responsible for control and monitoring of over 260 remote sites (mostly wells and pump stations), was originally developed using legacy FactoryLink HMI software and Modicon Concept-based PLCs with little standardization.

The City, understanding that SCADA obsolescence posed major safety and security risks, engaged EA directly to design and replace the system.

EA solution

The new SCADA system was designed to accommodate expansion to 1000 wells. In order to accommodate the vast variety of existing and future wells, it has been designed to allow well sites with similar configurations to share a common page design, significantly reducing configuration time. The system also contains an embedded energy optimization system that uses real-time energy rates, pump efficiency calculations, and system pressures to determine which wells to run such that adequate system pressures are maintained at the lowest energy cost possible.

Project Manager



**Clarence
Go**

Project Technical Lead



**Isabel
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Key Insights:

- SCADA replacement designed for up to 1,000 sites with scalability enabled by standardized templates
- Conversion from FactoryLink to CitectSCADA HMI

Key Technologies:

- Modicon PLCs
- CitectSCADA HMI
- Vijeo Historian
- VMWare

