

Featured Project

San Francisco Water SCADA System Greater San Francisco Bay Area

San Francisco, California

ArcSine Engineering, as part of a multi-consultant design team, designed a new SCADA system for the San Francisco Water Department. The San Francisco Water Transmission and Distribution System supplies water to approximately 2.5 million people in the San Francisco Bay Area including 33 cities located in Alameda, San Mateo, and Santa Clara Counties. The SCADA system improved the operation and management of water supply, transmission, and distribution. Water quality is continuously monitored throughout the system, with complete service area coverage to ensure safe and reliable delivery of high-quality water to all customers.

This fully networked computer architecture, coupled with redundant communications between critical facilities, provides a highly secure operations capability, even during natural disasters.

ArcSine's conceptual design covered 300 sites, with detailed design of 150 of the sites, the 3 Operational Control Centers, and 2 Control Centers. Several remote sites included photovoltaic system designs. The three Operational Control Centers (OCC) at Tracy WTP, Lake Merced, and Sunol WTP, have fully redundant SCADA servers with multiple workstations and connections to the RTU field sites. Workstations at Millbrae and Newcomb Avenue Control Centers provide remote control of the system using the frame relay WAN and VSAT Satellite backup system.

In the event that one OCC fails, the other OCC's can take over monitoring and control of the entire system. Real-time data are distributed to all three OCC's and stored in both short-term (SCADA servers) and long-term historian servers. Multiple communication links to RTU's are provided: ADN, dialup, spread-spectrum radio, UHF MAS radio, and VSAT satellite.

A sophisticated security access system is provided with both hardware (ID cards) and software to prevent unauthorized access and to manage various areas of responsibility.

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