

Project Experience

SCADA System Design and Construction Support Services

Sacramento County Water Agency, Sacramento, CA

Timberline was contracted to the Sacramento County Water Agency to provide engineering design and construction support services for an expansion to its Zone 40 water SCADA/telemetry system and to develop PLC programming guidelines for process control at its water treatment plants. This project involved development of control algorithms for system-wide pressure control; design of fault-tolerant master station, remote workstations, and high-speed data links to other systems; and specification of PLC-based RTUs for water treatment plants and production wells.

Timberline developed standard PLC programming requirements, logical user-friendly programming structures for generic program modules, and software design guidelines for use by Agency personnel, consultants and contractors in programming for future water facilities. These standards were first applied at the Agency's Dwight and Waterman Water Treatment Plants. Standards enforcement was achieved via design review meetings with the system integrator's PLC programmer, and through submittal reviews, with final verification through factory testing and field acceptance testing. This SCADA system uses 900 MHz MAS radio for telemetry.



FACTORY TEST AT TRANSDYN CONTROLS

Zone 40 was established by Sacramento County in order to implement a conjunctive water supply program whereby treated surface water would be imported to supplement groundwater use in this high-growth, high-demand area. SCADA helps the Agency optimize the use of surface water when available, balance this source with groundwater, deliver water to other purveyors, and manage groundwater recharge programs. Some of the SCADA system's special features allow use of the most efficient pumping units first, provide safeguards against pump short-cycling, and allow participation in the local utility's energy curtailment program. The net result is significant improvements in water system operation and overall utility performance.

Timberline was also contracted to Sacramento County Water Quality Division to provide engineering services to investigate the installation and operation of 900 MHz point-to-multipoint spread spectrum radios at the County's Waterman Treatment Plant and well field. This work

included field investigation, radio performance tests, radio tuning and recommending actions for improving performance and installation. Guidelines for spread spectrum radio installation are now being applied to new production facilities.

Contact: *Mike Crooks, PE, Sr. Civil Engineer*
 Sacramento County Water Agency / Sacramento, CA
 (916) 874-5434