

# Project Experience

## SCADA System Study, Design and Construction Support Services

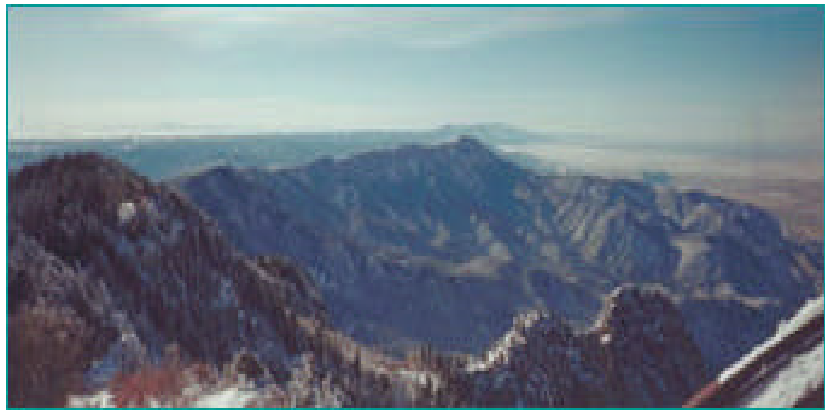
### Public Service Company of New Mexico Water Services, Santa Fe, NM

Timberline performed a SCADA study and system design for the Public Service Company of New Mexico Water Services (PNMWS) in support of the City of Santa Fe's Sangre de Cristo water system. PNMWS was the operations and maintenance contractor for this municipal water system at the time the system was completed in June 2001. Ownership of the system has now reverted to the City of Santa Fe.

The study phase of the project included an evaluation of an existing centralized Motorola Intrac-2000 SCADA/radio telemetry system (including some MOSCAD RTUs) and recommended improvements. Since the City uses both groundwater and surface water resources, the SCADA system serves water treatment plants, storage reservoirs, booster pump stations and wells. The project involved system requirement analyses, development and evaluation of alternative system configurations, and recommendations for the most viable approach to upgrading the existing SCADA and telemetry systems. The end product of the study was a technical report that outlined a plan for the design and implementation of a replacement SCADA system.

Following the study phase of the project, Timberline prepared bid documents for the replacement SCADA system, which featured a new master station with dual-redundant CPUs at the City's Water Treatment Plant. The system was designed with 30 RTUs initially, with capabilities for future growth.

The SCADA master station hardware includes dual host CPUs, dual FEPs, 100 Mbps LAN interface equipment, and operator and programmer workstations. The communications system for this project included new 928/952 MHz MAS digital radio with a dual hot-standby master and PC-based diagnostics. The new system is licensed at new frequencies (shared with another entity 89.7 miles



VIEW FROM TESUQUE PEAK  
MASTER RADIO STATION SITE

away), which required temporary parallel operation during startup and cutover. The project also included 384 kbps microwave links operating in the 960 MHz frequency band. This equipment included rack-mounted dual hot-standby radios, multiplex hardware, diagnostics. The point-to-point microwave network connects Tesuque Peak (12,000 feet) to the Operations Building and the Operations Building to the Water Treatment Plant. There are also 900 MHz spread spectrum

radios to serve as link extenders at remote sites hidden in canyons and to interconnect RTU sites at two surface water supply reservoirs.

**Contact:**     *Jon Ertsgaard*  
                  *Formerly Engineering Manager with PNMWS*  
                  *Albuquerque, NM*  
                  *(505) 898-6244 (Home)*