



THE TAMING OF THE RANCH

by Lee Shields, PLS

From mountain peaks to rain flooded valleys, wild animals to unsolved mysteries, the boundary survey of the Vermejo Park Ranch in northeastern New Mexico challenged surveyors from Shields Survey Ltd. Company to deal with the environment as never before. The ranch is an enormous piece of property that covers 580,000 acres of land, including portions of two counties in New Mexico and two in Colorado. Demanding equal parts endurance and resourcefulness, it extends from 5,000' above sea level on the plains area near the city of Maxwell to about 13,000' on Baldy Mountain in the Sangre de Cristo range. Weather conditions vary, seemingly within minutes, from hot and dry to wind and rain. Rich with wildlife, desert fauna and rugged landscape, much of the region is untouched by the modern world.

The project began when Pennzoil Exploration Corporation initiated the sale of the Vermejo Park Ranch to television magnate Ted Turner. A sale prerequisite included a complete boundary survey as part of a title insurance policy for the new owner—something that had never been done for this particular piece of property. Pennzoil hired my company, Shields Survey Ltd. Company, Clayton, N.M., to perform this task, challenging the firm to complete the largest boundary survey in this century within six months beginning in June 1996, and do it to an accuracy of 1:10,000.

Clearly, one of the most significant challenges was the amount of

The tale of the century's largest boundary survey.

land that had to be covered or crossed—2,300 square miles—to gather the required information. The property runs about 50 miles east to west and 43 miles north to south over desert plains and mountain peaks. Given the rugged terrain, two surveying crews were put together—one three-person and one two-person team—each equipped with Leica SR399 dual frequency real-time GPS receivers and Leica TC1600 total stations with the Husky data recorder and C&G Field Plus software running on laptop computers. A.B. (Britt) Swart, with the help of Mitch Phillips, supervised the surveying and field operations from the Raton office.

GPS was selected as the primary field data-gathering tool because of its flexibility, mobility and efficiency. More traditional survey methods would simply require too much time and larger field crews. We also subcontracted with surveying firms in Colorado and New Mexico to survey part of the ranch's west line and a 30,000 acre tract in Colorado.

To save time and reduce travel miles, Shields Survey rented two houses outside of Raton, N.M., located near the northeast corner of the ranch. These houses served as offices and temporary homes for field crews. The firm equipped each office with telephone and modem lines, desktop computers, as well as the C&G Field Plus software and Leica's SKI post-processing software. To help speed travel, particularly along the rugged and often rain-soaked mountain ranch roads, we relied on three four-wheel-drive trucks and one four-wheel-drive all-terrain vehicle.



One of the original corners of the Vermejo Park Ranch set in the late 1800s.

All photos courtesy of Lee Shields.



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