

**1. Purpose of the Project:** To identify potential hazards to infrastructure from future earthquakes on the active Sangre de Cristo fault, which runs through GRSA and very close to several facilities. This is accomplished by mapping active fault traces and analyzing the potential effects of future earthquake surface rupture and ground shaking.

**2. Accomplishments:** 1) Excavated three backhoe trenches across strands of the Sangre de Cristo fault east of the employee housing area, and near to its water storage tanks.  
2) Photographed and mapped trench walls, and collected samples for dating prehistoric earthquake events.

**Related Efforts/ Leverage:** The faults strands were mapped and trenched as part of a field course in geology offered by the Crestone Science Center (Crestone, CO) and Utah State University (Logan, UT). The PI was assisted by 9 students who used this experience as part of their course work. Their labor constituted an in-kind contribution of several thousand dollars.

**3. Products:** The Final Report on the trenching study and its implications for earthquake hazards will be finished in Feb. 2003. A video will also be finished at about that time.

**4. Contribution to Park:** Understanding the potential earthquake hazards at GRSA will permit safer planning for future infrastructure, and may point out sensitive facilities that should be retrofitted. The video will demonstrate how recurrent faulting along the Sangre de Cristo fault created the topographic barrier of the Sangre de Cristo Mountains, which in turn trapped the sand that formed the Great Sand Dunes. Past interpretive displays on geology have tended to underplay the tectonic setting of GRSA in favor of its dune dynamics and active geomorphic systems, so this will explain the “Bigger Picture” to visitors.

**5. PHOTOS:** attached