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Paleozoic Geology and Seismic Stratigraphy of The Northern Uncompahgre Front, Grand County, Utah

Two deep Paleozoic tests, the Mobil-American Petrofina Elba Flats Unit No. 1-30 and the Mobil No. 1 McCormick Federal "C", and an extensive network of seismic data have provided important stratigraphic information relative to the development of the northern Paradox foreland basin and the timing of movement along the adjacent Uncompahgre fault. The Elba Flats well contains 12,000 ft. of arkosic debris interbedded with marine shales and carbonates of the Honaker Trail and Paradox formations. Sandy carbonates and carbonate clasts suggest that gentle regional warping of the Uncompahgre highland may have begun as early as Mississippian time. Uplift of the highland and the compensating subsidence of the basin were greatest when the Honaker Trail and Cutler formations were deposited. This was also the time of major salt flowage within the Paradox Formation that resulted in large salt anticlines. Seismic and sample data indicate that the McCormick well drilled 14,000 ft. of thrust Precambrian granite before penetrating fault slices of Mississippian and Devonian rocks and bottoming in the Paradox Formation. Horizontal displacement of the Uncompahgre fault is at least six miles; vertical displacement is approximately 20,000 ft.