



Regional structural-stratigraphic cross section, east-central Arizona to west-central New Mexico

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REGIONAL STRUCTURAL-STRATIGRAPHIC CROSS SECTION, EAST-CENTRAL ARIZONA TO WEST-CENTRAL NEW MEXICO

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This regional cross section (in pocket) is based on electric logs and sample logs, as well as scout data and information from the New Mexico Bureau of Mines, and from the published literature. However, over 90% of the work represented is original correlation by the writer.

The cross section is designed to show correlations and regional structure from the south side of the Black Mesa Basin of Arizona (on the Mogollon slope), across the ancient Zuni positive, through the southeast end of the Zuni Basin, eastward to the Lucero region of New Mexico.

The cross section reveals a large amount of new stratigraphic information, and practical consideration suggest that this region merits thorough wildcatting for oil and gas production. Following are some of the major reasons, despite the thin to non-existent Pennsylvanian marine section:

1. Lower Abo to Upper Red Tanks strata containing marine reservoir and source rocks may be present under the Zuni Basin and the Mogollon slope. These strata may contain commercial helium and/or hydrocarbon gases.

2. The Lower Yeso Meseta Blanca sandstone wedges out westward across the Zuni Basin, and may be an ex-

cellent, porous reservoir rock for gas and oil. The westward wedging appears to be due to facies gradation rather than erosional wedgeout, and marine source strata related to the Permian Cuchillo-Quemado basin of deposition are known to be present in the Yeso formation.

3. The Yeso Los Vallos evaporite-dolomite-sandstone section shows great lithofacies variation, and may be productive of oil and gas; however, the Fort Apache section is poorly developed in the Zuni Basin as compared to east-central Arizona.

4. The Permian San Andres-Glorieta carbonate-sandstone section shows great blanket porosity, and is of marine origin. Therefore, where strong traps exist in depth in the Zuni Basin, commercial oil and gas might be present.

5. The Dakota, Tres Hermanos, and Gallup sandstones range from porous blanket sandstones to wedging and facies gradation reservoirs intimately related to marine Mancos shale. With the proper coincidence of trap, porosity, hydrodynamics, and existence of oil and gas, this Upper Cretaceous section may well be the most important objective in the Zuni Basin.

