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Willis W. Tyrrell<sup>1</sup> (1) Consulting Geologist, Charlotte, NC

## **Atlas of Well Log Cross Sections Helps Relate Permian Sequences, Guadalupe Mountains Area, New Mexico and West Texas**

An atlas of 16 Paleozoic well log (1"=400'vertical) cross sections has been prepared for Eddy Co., NM and adjacent TX using over 200 wells. The grid of sections is tied to outcropping Permian Composite Sequence (CS) and High Frequency Sequence (HFS) published studies, as well as type surface sections, Gulf PDB 04 cored well, regional EPR seismic line northeast of Carlsbad and 8 published regional cross sections.

The atlas sections (many to be published by NMBGMR) provide: (1) basic subsurface data for first-time field visitors or students who may be unfamiliar with the area's entire Paleozoic section; (2) interpretation of stratigraphic relationships possibly useful in evaluating sequence analyses in nearby classic Permian outcrops and changes within sequences along strike; and (3) convenient log sections for making independent interpretation of sequences in thick Permian, Pennsylvanian, and older Paleozoic units.

Super Sequences, many CS and some HFS established by others in Guadalupian and post-Tubb Leonardian outcrops commonly can be recognized from geophysical log plus sample data in the northern Delaware Basin and to a lesser extent on the Northwest Shelf. In contrast, the pre-3rd Bone Spring Sandstone Leonardian and Wolfcampian sequences recognized in Sierra Diablo outcrops are difficult to determine in slope and basinal facies from log character alone. Nevertheless, well sections along the lower Yeso, Abo and Hueco shelf and basin margins provide insight into possible relationships on trend in New Mexico.