ABSTRACT

TITLE:	Sequence Stratigraphic Interpretation of the Pennsylvanian Hermosa Group in Rico, Colorado
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ABSTRACT: A detailed measured section and sequence stratigraphic interpretation of the Pennsylvanian (Moscovian) Hermosa Formation on Sandstone Mountain near Rico Colorado, reveals 19 unconformity-bounded sequences, nested within 3-5 sequence sets. Measuring 286 m thick, the section provides the closest surface location to examine the updip facies equivalent to the prodeltaic shales that host recent shale gas plays in the adjacent basin. Here we present a new sequence stratigraphic interpretation of a section measured in the medial to upper portions of the Hermosa Group as defined by Spencer and Cross, 1900. This section appears to correlate with the upper sequences of the Hermosa Cliffs trend 14 miles to the East described by Gianniny , Miskell-Gerhardt, and Ritter (2008). The Pennsylvanian strata in Rico consists of marine mixed carbonate-siliciclastics lithologies and non-marine clastics. The siliclastics are interpreted to be dominated by proximal fluvial and deltaic facies with a notably lower feldspar content than those of the Hermosa Cliffs sections. Marine facies range from prodeltaic black shales, to shallow marine, photic zone carbonates with a diverse open marine fauna. Lithostratigraphic correlations suggest that the base of this section is above the upper Akah interval evaporites and may range into the upper Pennsylvanian below the Permian marine Rico Formation. Subaerial exposure and subsequent scour of the tops of the carbonate beds delineate the position of sequence boundaries, while flooding surfaces in both carbonate and clastic lithologies define higher frequency stratigraphic cyclicity. The high frequency cyclicity of this section is attributed to glacial eustasy in addition to the variations in sediment supply due to climate and uplift/subsidence on this tectonically active basin margin.