ABSTRACT

TITLE:	Relative Dating of the Faults Within the Pennsylvanian Hermosa Group, Coal Bank Pass - Molas Pass, San Juan Mountains, Colorado
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ABSTRACT: Two pulses of syndepositional faulting have been identified within the deposition of the Pennsylvanian Hermosa Group in the southern San Juan Mountains of southwest Colorado. The study area between Coal Bank Pass and Lime Creek is bounded by a major syncline on the northern edge, and the Snowdon Fault and Coal Bank Fault to the south. This study develops new information on the Coal Bank Fault and contains additional analysis of the Snowdon Fault. Higher resolution correlation in this study is made possible by integrating the sequence stratigraphic framework of Gianniny and Miskell-Gerhardt (2009) with previous studies. In order to more accurately constrain the activity of the Snowdon Fault, a stratigraphic section within the syncline was measured and compared to multiple sections across the faults. There is roughly 10 meters of thickness difference in the lower third of each section. The top of this growth faulted interval is correlated to the top of sequence 3 of Gianniny and Miskell-Gerhardt, (2009). The lack of deformation between the syncline section and the Coal Bank Hill section (Spoelhoff, 1974) above this bed indicates that the fault became inactive before sequence 4 deposition. Up section, in sequence 10 and 11, the Snowdon Fault was reactivated during deposition. The beds of sequence 10 and 11 are much thicker and become clastically dominated across the Snowdon Fault to the north. These beds transition from paleosols and thin, shallow, water carbonates on the Engineer section to thick mud dominated carbonates and thick clastic packages on the syncline section; which may indicate a fault controlled paleo-valley. Comparing the Coal Bank Hill section to the Engineer section across from the Coal Bank Fault, there is roughly 30 meters of thickness difference in the lower third of the section. This difference also disappears by the base of sequence 4. This indicates that the Coal Bank Fault was also active during the sequence 1 through sequence 3 deposition of the Hermosa Group. This study helps to distinguish Pennsylvanian syndepositional faulting from post-depositional Laramide faulting and builds on the previous work of Baars and See, 1967, Girdley, 1969, Spoelhof, 1974, Evans, 2002, and Thomas, 2007.