# Evaluating the Origin of Build-and-fill Geometries Exposed in the Goosenecks, Paradox Basin, Utah, USA

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Canyon walls of the Goosenecks of Utah expose 19 Pennsylvanian cyclothems (sequences) with well-preserved geometries that appear to follow a build-and-fill geometric model. Build-and-fill describes carbonate or mixed sequences with relief-building and relief-filling phases. This study analyzes Goosenecks outcrops for indicators of sea-level change associated with build-and-fill and non-build-and-fill geometries. Markers of sea-level rise, such as flooding surfaces and faunal changes, should be found within the building geometries and markers of sea-level fall, such as subaerial exposure indicators (mudcracks, paleosols, pendant cements etc.), should be found within filling structures. The research will evaluate if building phases are associated with relative sea level rise and filling phases are associated with sea level fall. It will determine if there is a fundamental biotic or sedimentologic difference between build-and-fill and non build-and-fill sequences. Detailed stratigraphic sections, polished rock slabs, and thin sections will be utilized during this study.