

LITHOFACIES CORRELATIONS WITHIN THE
UPPER CRETACEOUS INDIANOLA GROUP,
CENTRAL UTAH

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ABSTRACT

Strata of the Upper Cretaceous Indianola Group occupy a key tectonic position between thrust-faulted terrane of west-central Utah foreland basin. Biostratigraphy and depositional facies analysis are combined to correlate Indianola sections in the Cedar Hills, the Gunnison Plateau, and the western Wasatch Plateau. Eight distinct depositional facies are recognized in Indianola sections: 1) alluvial fan conglomerate, 2) braided fluvial conglomerate, 3) braided fluvial pebbly sandstone, 4) meanderbelt fluvial sandstone and siltstone, 5) delta distributary sandstone, 6) lagoonal sandstone, siltstone, and mudstone, 7) nearshore marine sandstone, and 8) open marine mudstone and siltstone. The facies form a consistent vertical sequence that is persistent between the localities studied, although predictable lateral variations occur.

Marine clastic facies dominate the lower half of the Indianola section, with intercalated, coarse grained nonmarine fluvial facies recording the onset of sedimentation in Cenomanian(?) time, and an episode of Turonian fan-delta formation. The upper half of the section contains poorly dated Santonian and Campanian nonmarine strata which preserve a consistent lithofacies succession of massive braided fluvial sandstone interrupted by a medial interval of meanderbelt fluvial sandstone and siltstone. The depositional facies of the Indianola Group were controlled by proximity of the developing thrust terrane to the west while overall patterns of sedimentation were largely controlled by fluctuations of relative sea level. Relative sea level changes were probably a result

of both crustal subsidence in response to tectonic loading, and global eustatic cycles. Patterns of sedimentation revealed by correlation of Indianola sections suggest that major thrust faulting affected central Utah in Late Albian or Cenomanian time and was continuous until deformation ceased in the Late Campanian.