

**GEOMETRY AND DEPOSITIONAL STYLES
OF A TRANSGRESSIVE SHORELINE:
CLIFF HOUSE SANDSTONE (CAMPANIAN),
SAN JUAN BASIN, NEW MEXICO**

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The Cliff House Sandstone, the uppermost unit of the Cretaceous Mesaverde Group in the San Juan Basin, was deposited as marginal marine facies along the western shore of the Western Interior seaway during marine transgression. Through examination of over 2000 electric logs in the western San Juan Basin, several units within the Cliff House Sandstone reveal various depositional responses to changes in eustatic sea level and in rates of basin subsidence and sediment supply.

The Cliff House Sandstone consists of long, narrow (8 km), thick (maximum 61-240 m) sandstone 'benches' that trend N 50° W and are typically separated by broad (to 13

km) zones of relatively thin (to 12 m sandstone) sheetlike sandstone. The benches represent vertical aggradation of paludal facies during temporary stabilization of shoreline positions; the intervening zones represent more rapid transgression.

The La Ventana Tongue, the thickest (240 m) bench, internally consists of eight genetically related, stacked sandstone subunits. Their net-sandstone and facies maps indicate distinctive sandstone geometries that suggest deposition as wave-dominated deltas and associated strand plain-coastal barrier systems along with shelf sand-bar systems. Previous outcrop studies verify these interpretations. Inferred sedimentary facies and depositional processes are believed to be similar to those of the modern Nile delta.