Offshore to Upper Shoreface Wave-Dominated Facies of the Cretaceous Trevor Formation, Peel Plateau, NWT

Thomas Hadlari*
Northwest Territories Geoscience Office, Yellowknife, NT, Canada
thomas_hadlari@gov.nt.ca

Martin House, Arctic Red, and Trevor formations constitute the Cretaceous rocks of the Peel Plateau and Plain region at the front of the Mackenzie Mountains, west of Norman Wells (Mountjoy and Chamney, 1969; Yorath and Cook, 1981). Martin House Formation is a transgressive marine sandstone. Arctic Red Formation is a thick succession of basinal marine mudstone.

Trevor Formation is subdivided into four facies: mudstone; interbedded sandstone and mudstone; amalgamated hummocky cross-stratified (HCS) sandstone; and parallel-laminated sandstone. *Mudstone facies* is composed of poorly indurated mudstone, siltstone, and very minor sandstone interpreted as offshore deposits. *Interbedded sandstone and mudstone facies* contains storm beds of HCS, parallel lamination and combined flow ripples that alternate with interlaminated mudstone and ripple cross-laminated sandstone. Interbedded facies is interpreted as transitional to lower shoreface. Superimposed storm deposits of HCS and parallel laminated very fine to fine grained sandstone comprise the *amalgamated sandstone facies*, interpreted as middle shoreface. *Parallel laminated sandstone facies* is dominated by horizontal parallel lamination with minor scours. The association of horizontal parallel lamination in fine to medium-grained sandstone is interpreted to represent a storm-dominated upper shoreface.

Trevor Formation parasequences, 20-60 m thick, are bounded by flooding surfaces commonly associated with a transgressive lag. A typical upward-coarsening succession is from mudstone, through interbedded sandstone and mudstone, to amalgamated sandstone facies. Associated HCS increases in wavelength from small (10-30 cm) to large scale (1-3 m). These parasequences record lower and middle shoreface progradation of fine-grained sand into an offshore mud-rich marine basin.

References

Mountjoy, E.W. and Chamney, T.P., 1969. Lower Cretaceous (Albian) of the Yukon: stratigraphy and foraminiferal subdivisions, Snake and Peel rivers. Geological Survey of Canada, Paper 68-26, 71 p.

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