

CORE CONFERENCE ABSTRACTS

WAVE DOMINATED CONGLOMERATIC AND
SANDSTONE MARINE SEQUENCES OF THE
GATES FORMATION (FALHER EQUIVALENT)

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Coal company diamond drill core is rarely used in exploration for gas and oil and a tremendous data base is being overlooked. Complete intervals, commonly hundreds of metres in length will be cored throughout, often on a well spacing of 500 metres. The wells are geophysically logged, providing suites of gamma ray, density and sonic logs. There is typically outcrop within a few hundred metres of the well which can provide paleocurrent data and more detailed sedimentological interpretations.

A diamond drill core from the Gates Formation in northeastern British Columbia exhibits an upward coarsening conglomeratic sequence. The facies sequence is non-marine carbonaceous sediment → thin transgressive conglomerate → interbedded sandstone and shale (offshore transitional facies with hummocky cross stratification) → amalgamated hummocky cross stratified sand → swaley cross stratification (?) → nearshore conglomerate of storm origin → beach conglomerate → nonmarine carbonaceous sediment. This sequence is laterally equivalent to the subsurface Falher D cycle. It is identical to the Falher A and B cycles. A second core 4 km from the first exhibits an upward coarsening sandstone sequence. There is no conglomerate present. The facies sequence is classical turbidites hummocky cross stratified sandstone → amalgamated hummocky cross stratified sandstone → trough crossbedded and bioturbated sandstone (nearshore with tidal influence) → rooted sandstones (beach) → coal and carbonaceous sandstones. This sequence is laterally equivalent to the subsurface Falher F cycle and identical to some Falher B, C and D cycles. These two zones are interpreted as having been deposited on a wave dominated coast. They typify upward coarsening sequences in much of the Lower Cretaceous of northeastern British Columbia. Similar cycles have been observed in the underlying

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Gething Formation and overlying Boulder Creek (Paddy - Cadotte) as well as the Notikewin of Alberta. The inference of this is that most Lower Cretaceous shorelines in northeastern British Columbia (and Alberta?) were (storm) wave dominated.