

Sequence Stratigraphy of Late Devonian(Frasnian) Carbonate Platforms from the Front Ranges of West Central Alberta

Pak Wong, Consultant, Calgary, Alberta, John Weissenberger, Husky Energy, Calgary, Alberta.
and Murray Gilhooly, Husky Energy, Calgary, Alberta

Six major third order sequences are recognized in the upper Devonian (Frasnian) carbonate strata exposed in the front ranges of west central Alberta. This stratigraphic framework is based upon numerous measured outcrop locations tied to regional subsurface studies and conodont biostratigraphic data.

The bounding surfaces and internal character of some of the sequences are described with examples from outcrops located at Wapiabi Gap, Kiska and Cripple Creek. Each sequence is initiated by a sea level fall, as interpreted from onlapping stratal geometries and abrupt juxtaposition of tidal flat/reef flat/reef margin-upper foreslope deposits over lower foreslope/basinal deposits.

A noteworthy aspect of these sequences is the common aggradational or even retrogradational deposition during sea-level highstands. In contrast, high rates of carbonate production and progradation characterize sea-level lowstands and transgression. This reflects the influence of environmental factors and antecedent topography on stratigraphic stacking.