

Reservoir Geology of the Middle Devonian Slave Point Formation, Chinchaga Alberta

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ABSTRACT

The Middle Devonian Slave Point Fm at Chinchaga Alberta (Township 97 Ranges 6 and 7 W6) produces gas and condensate from several pools. OGIP was 76 BCF.

Two informally defined members within the upper Slave Point are productive at Chinchaga. The lower is characterized by a well defined encrusting – tabular stromatoporoid reef margin facies belt which separates a low energy reef interior lagoon-tidal flat complex from a deeper water lower – middle foreslope belt. The upper member, by contrast, more closely resembles a ramp depositional system, with the highest energy environment comprised of stromatoporoid fragments within a packstone – grainstone matrix. Relative to the underlying member, the upper member has a backstepped morphology and a less obvious facies differentiation between platform top and off platform environments.

A hardground commonly occurs at the top of the Slave Point, and is interpreted to represent a marine flooding surface. A younger, deeper water argillaceous lime mudstone to brachiopod – crinoid floatstone of the Beaverhill Lake Group acts a seal to hydrocarbons within the Slave Point.

Porosity within the Slave Point at Chinchaga is mainly secondary moldic and vuggy and averages around 8%. Permeability in the reservoir typically ranges between 1 to 10 md, but can be over 50 md.

Dolomite is present locally within the reservoir in amounts over 30%. Non-ferroan dolomite is present both as fine crystalline euhedral forms, and as coarser saddle dolomite, both replacive and as cement.