A DIRECT COMPARISON OF HYDRAULIC FRACTURE GEOMETRY AND WELL PERFORMANCE BETWEEN CEMENTED LINER AND OPEN HOLE PACKER COMPLETED HORIZONTAL WELLS IN A TIGHT GAS RESERVOIR

Murray Reynolds, P.Eng., SPE; Susan Thomson, P.Geoph., SPE; Faezeh Peyman, SPE; TAQA North Ltd.; Allan Hung, Geoph IT; David Quirk, P.Eng., SPE; Shaoyuan Chen; Trican Well Service Ltd.

ABSTRACT
The Glauconitic formation is a Cretaceous age sandstone reservoir located across a large area of central Alberta, Canada. Discovered in the late 1970’s, hydraulically fractured vertical wells could produce commercial volumes of natural gas from some of the higher permeability conventional sands. However, wide spread development of the majority of the tight gas sands was not economic with vertical wells.

With the introduction of multiple fractured horizontal well (MFHW) technology in recent years, and much better definition of the geology, a large unconventional resource play has developed in the Glauconitic, which could contain in excess of 5 tcf of gas in place plus associated natural gas liquids (Scotia Capital, 2009).

A pilot project was designed to test the completion effectiveness between a cased and cemented liner and an open hole packer system in this tight gas reservoir.

Two vertical microseismic observation wells were located in close proximity to two proposed horizontal wellbores, giving ideal conditions to test how the hydraulic fractures would grow and the ultimate fracture geometry, from two different completion methods.

In this paper we will present the microseismic results of the pilot project, as well as the early production history comparison between the two wells, and the hydraulic fracture effectiveness from a reservoir engineering aspect.

To order the full paper, visit https://doi.org/10.2118/152185-MS