DRILLSTEM TEST ANALYSIS - PROBLEMS OF DST EVALUATIONS IN LOW PERMEABILITY HYDROCARBON SYSTEMS

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Quantitative drillstem test analysis is often the key technology used to judge the flow capability of a well prior to casing a well. Quantitative drillstem test analysis is capable of estimating insitu flow capacity and formation damage. Initial post completion flow rates of oil, gas and water can be estimated from drillstem test data analysis. We find this technique is reliable for fair to excellent permeability reservoir rocks for the Western Canada Sedimentary Basin. The low permeability reservoir rocks systems (0.1 mD to 10 mD) tend to be underestimated especially in the Deep Basin hydrocarbon saturated areas. Several case histories will be examined to demonstrate the severity of this wellbore evaluation problem. The underestimation of permeability can be 10 fold to as much as 100 fold. It is possible to condemn commercial rock quality based on drillstem test information which was interpreted as tight rock. This drillstem test misinterpretation phenomenon has been used to locate economic bypassed hydrocarbons and was one of the keys to the discovery of the Ring Border Montney Field, N.E. British Columbia.