

Abnormal Pressures and Water Saturations in Tight Gas Scenarios

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ABSTRACT

Abnormal pressure in tight reservoirs typically indicates that they are not at hydrostatic equilibrium with their environment. Extending non-equilibrium conditions to the reservoir itself gives us a simple explanation for most of the “unconventional properties” usually found in these scenarios.

A visual model helps show the equivalence between the over-pressure and the capillary pressure of the system. At the same time, this simple equivalence fully explains the low water saturation and other "anomalies" often found in these reservoirs.

Applying this model improves the overall evaluation of these accumulations and improves reserves estimation through direct measurements and modifying the routine use of laboratory capillary pressure curves.