



The Apparent Producibility: A Novel Approach for Reliable Geological and Completion Decisions and Improved Net-Pay Determination

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ABSTRACT

The weighted average summation of normalized reservoir and well attributes at a level, deemed to be relevant to the prognostication of producibility, yields a novel quantitative Apparent Producibility, ξ value. The individual attributes and the ξ values obtained therefrom are dimensionless numbers, scaled between zero and unity that are internally consistent, mutually compatible and scaled identically across the section or across wells in a basin.

At present a subjective approach is used wherein a qualitative, visual assessment of a large number of well and petrophysical outputs on a plot forms the basis for picking perforation and stimulation intervals. Subjectivity and uncertainty will be greatly reduced should this visual approach be supplanted by using ξ for picking perforation and stimulation intervals, etc. Intervals may also be readily graded based on ξ .

The traditional netpay determination, based on cutoff values for a set of reservoir attributes e.g., porosity, V_{cl} , permeability, S_w , etc., consistently undercounts pay at gradational boundaries between reservoirs and non-reservoirs. Where the traditional multiple cutoff approach for net pay determination is replaced by the ξ as the sole cutoff criterion, intervals at gradational reservoir-to-non-reservoir boundaries, by passed by the traditional approach, are included in the netpay count. This leads to significant increases in computed netpay and hence OOIP and asset value. The effect is pronounced in multilayered sequences.