Laminar Inertial Turbulent IPR @ model

Synonym: Laminar Inertial Turbulent IPR @ model = LIT IPR @model

One of the most general form of IPR model below bubble-point pressure:

(1) $a\,q + b\,q^2 = \Psi^n(p_r) - \Psi^n(p_{wf}) \quad , \quad p_b > p_r > p_{wf}$

where

p_{wf}	bottom-hole pressure (BHP)
p_r	drainarea formation pressure
p_b	bubble-point pressure
n	pseudo-pressure curvature
a	laminar flow coefficient
b	turbulent flow coefficient
$\Psi(p)$	pseudo-pressure function specific to fluid type

It needs well tests at least three different rates to assess $\{a, b, p_r\}$ but obviously more tests will make assessment more accurate.

See also

Petroleum Industry / Upstream / Production / Subsurface Production / Subsurface E&P Disciplines / Field Study & Modelling / Production Analysis / Productivity Diagnostics / Inflow Performance Relation

[Vogel IPR @model] [Richardson and Shaw IPR @ model] [Wiggins IPR @ model][LIT IPR @ model][PADE IPR @ model]

References

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- Archer, R. A., Del Castillo, Y., & Blasingame, T. A. (2003, January 1). New Perspectives on Vogel Type IPR Models for Gas Condensate and Solution-Gas Drive Systems. Society of Petroleum Engineers. doi:10.2118/80907-MS
- Seidle, J. P., & Erickson, D. J. (1993, January 1). Use of Vogel's Inflow Performance Relation for Coal Wells. Society of Petroleum Engineers. doi:10.2118/26201-MS