

NON-DARCY FLOW IN CORE PLUGS: A PRACTICAL APPROACH

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Abstract Rapid turnaround in conventional core analysis usually demands only single point gas permeability measurements. The flow rate and mean pressure are often set arbitrarily, and the data are reported without correction for slippage. To perform the Klinkenberg correction properly, the single point permeability measurement must not be significantly affected by non-Darcy flow. A permeability-dependent limit has been put on the flow rate used in a test to ensure this. The criterion for the onset of significant non-Darcy pressure loss is defined by the purposes of the measurement: the Forchheimer equation is a continuous function, with no 'critical' flow rates to signal transition from one flow regime to another. Results from a UKCS gas reservoir are presented to illustrate the method, on a facies basis.