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The Determination Of Minimum Tested Volume And Future Well Production From The Deconvolution Of Well Test Pressure Transients

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The Determination Of Minimum Tested Volume And Future Well Production From The Deconvolution Of Well Test Pressure Transients

Abstract:

Much effort has been placed on developing increasingly complex models to describe increasingly complex well and reservoir configurations. Regardless of the complexity of the system, pressure transients remain quite simple in character and consequently, despite considerable expenditure of time and effort, it may not be possible to obtain a unique analysis model from them.

The use of the derivative is now a standard technique in pressure transient analysis. Deconvolution is a more recent method that, thanks to improvements in the algorithms, is becoming accepted practice. The combination of these two powerful methods has significant implications on how pressure transient data can be analyzed. Before attempting to find a plethora of models that fit the observed data, there is much information that can be obtained from the data directly.

The deconvolved pressure derivative is a representative signature of the well and reservoir response over the period of pressure and rate measurements. It can be used to quickly and easily calculate the minimum connected reservoir volume in place and furthermore, by simple extrapolation, it allows a prediction of the well's future production.Tested volumes and future well production can be estimated from pressure transient data without building complex models.

Biography:

Tim Whittle

Tim Whittle is a Group Technical Authority for pressure transient testing at BG-Group in Reading, UK. He has a Masters degree in Engineering Science from Cambridge University, England and has worked in the oil industry for more than 25 years. Starting as a field engineer with Flopetrol Schlumberger, he gained practical experience in well testing operations and then moved to an R&D role where he was instrumental in developing the derivative analysis method with Dominique Bourdet.

In 1985, he joined Scientific Software-Intercomp as a reservoir engineer focusing on numerical simulation. In 1990, he spent several years with Norsk Hydro as a well test analysis specialist and then became responsible for the development of SSI's well test analysis software product – Interpret. He has written several papers on well test analysis and has given many industry courses on the subject worldwide. He joined BG-Group at the beginning of 2007 and is the group's expert on well test interpretation.

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