

Short Axis Logging for Successful Formation Testing in Ovalized Borehole Conditions

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Abstract

Pressure is a basic requirement in reservoir simulation, well bore stability studies, well completion design and drilling horizontal sections. Determining reservoir pressures in ovalised/elliptical hole and tight formations with wireline formation testing tools is challenging. When we have hostile logging conditions i.e. high temperature and ovalised bore-hole conditions; it becomes more difficult to obtain the formation pressures. In tight formations, conventional wireline formation testers are unable to obtain reliable pressure values as pretest volumes are very high leading to unstable pressures. This makes the pressure measurement unreliable and no further analysis is possible. Short axis logging with PPC (Power Positioning Calliper) helps in orienting the tool towards the short axis (on-gauge side) of borehole wall making it possible to obtain seal and to take pressure points. In addition with new generation wireline formation testing tools, pressure measurement in tight formations is now possible based on the advanced pretest mechanism.

This paper is about a case study where pressure testing in ovalised bore-hole conditions in a high temperature tight gas formation was done in Pakistan. Short axis logging with PPC was proposed as a solution with Advanced Formation Testing tool.