Successful Identification of Depleted Sands Utilizing a Formation Tester While Drilling Tool

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In the last two years, formation testing while drilling (FTWD) tools have been proven to be an alternative to wireline formation testers in different applications. The latest generation of FTWD tools utilizes a probe packer design, similar to conventional wireline formation testers. These tools are deployed on the drilling string and can be utilized during the drilling process. For example, pressure tests can be taken shortly after a zone has been drilled or while tripping out of the hole after reaching total depth. The use of this latest generation of FTWD tools to acquire a pressure test requires that the drill string be stationary for about 10 to 15 minutes in either a circulation or non-circulating mode.

This paper presents a case history from Asia Pacific area in which a FTWD tool was used on a highly deviated well to identify hydraulic conductivity between producing zones and two nearby aquifers. Data from other sands, which were of interest because they were though to be depleted, was also acquired. Because of the deviated well profile, it was not possible to use a traditional wireline formation tester (WFT). Using a drill pipe-conveyed wireline formation tester would have been a costly alternative. Furthermore, the well plan placed the casing shoe too far up the hole for a sidewall-entry sub to be deployed. This placement made use of a drill pipe conveyed WFT impossible for the desired depth without introducing a complicating change to the well plan. Running an FTWD tool avoided these complications. Running this tool on the drill string required no casing or hole size change. This plan represented a much more viable and cost effective choice.