681327 Integrated Formation Evaluation of High Pressure High Temperature Tight Reservoirs - a Case Study from West Kuwait
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Triassic reservoirs in western part of Kuwait have flowed gas and condensates on testing. These reservoirs are characterized by a complex suite of rocks consisting of dolostones, limestones, anhydrites, shales and halite.

Conventional reservoir quality is poor as porosity and permeability are negatively affected by multiple diagenetic events and can easily go undetected by most logging tools which are mainly designed for conventional reservoirs. Also these occur at greater depths which require high pressure high temperature drilling, small borehole design, use of oil based mud and specialized cementing practices.

As a result the availability of the full suite of logs is limited and the reservoir facies are difficult to identify and evaluate quantitatively. Additionally often salt plugging in both the surface test system and the downhole tubular impedes the production and masks the interpretation of the gas zone. It was difficult to determine the true rates from the well due to the high water cut and salt plugging and it is needed to investigate the source of water production & causes of salt plugging and interpretation of Gas zone to continuous hydrocarbon production.

Innovative and integrated workflows involving state-of-the-art technologies and incorporating wireline logs, core, gas chromatography, fracture, thin section petrography, well test and mud logging data have been employed for identification and evaluation of these reservoirs. These practices have been instrumental in effective exploration and evaluation of tight, HPHT reservoirs and highlight the need for synergistic workflows that need to be updated on continuous basis.
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