

Investigation and Analysis on Pore Pressure Variation by Sonic Impedance under Influence of Compressional, Shear, and Stonely Waves in High Pressure Zones

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Abstract : Pore pressure is one on the key Petrophysical parameter in exploration discussion and survey on hydrocarbon reservoir. Determination of pore pressure in various levels of drilling and integrity of drilling mud and high pressure zones in order to restrict blow-out and following damages are significant. The pore pressure is obtained by seismic and well logging data. In this study the pore pressure and over burden pressure through the matrix stress and Tarzaqi equation and other related formulas are calculated. By making a comparison on variation of density log in over normal pressure zones with change of sonic impedance under influence of compressional, shear, and Stonely waves, the correlation level of sonic impedance with density log is studied. The level of correlation and variation trend is recorded in sonic impedance under influence Stonely wave with density log that key factor in recording of over burden pressure and pore pressure in Tarzaqi equation is high. The transition time is in divert relation with porosity and fluid type in the formation and as a consequence to the pore pressure. The density log is a key factor in determination of pore pressure therefore sonic impedance under Stonley wave is denotes well the identification of high pressure besides other used factors.

Keywords : pore pressure, stonely wave, density log, sonic impedance, high pressure zone

Conference Title : ICGPE 2015 : International Conference on Geosciences and Petroleum Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : January 26-27, 2015