Geophysics International

PETRO-SONDE RESPONSE TO TANNEHILL SANDS

Petro-Sonde Survey - Oi1 and Gas Division

LOCATION. Knox County. North Central Texas; U.S.A.

OBJECTIVE OF THE PETRO-SONDE SURVEY. To delineate the depth, Thickness, porosity and the vertical Fluid distributions of the Tannehill sands.

GEOLOGY. Lower Permian channel sands with characteristically erratic reservoir distribution. The reservoirs grade From clean sands to shales on upper and lower contacts. The trapping mechanism is entirely stratigraphic.

INFORMATION AVAILABLE. General knowledge of stratigraphic column.

CONCLUSIONS AND COMMENTS. In Figure 1. the sand at 1908'-1922' is less porous than the sand at 1930'-1963'. The upper sand consequently has a higher resistivity thereby causing a lower resistivity contrast between the over and underlying shales than is exhibited by the lower sand. As expected. the electrotel1uric response is much more subdued across the upper sand. In the 1ower sand, note that the oil/water contact on the Petro-Log correlates with the oil/water contact on the dual Induction log.

Figure 2 shows two porous sands. In the upper sand (1921' 1931') there Is a distinct resistivity contrast between the sand and the shales. and Is entirely water bearing. In the lower sand (1940'-1950'). the presence of hydrocarbons accentuates the electrotelluric response relative to the water bearing upper sand.

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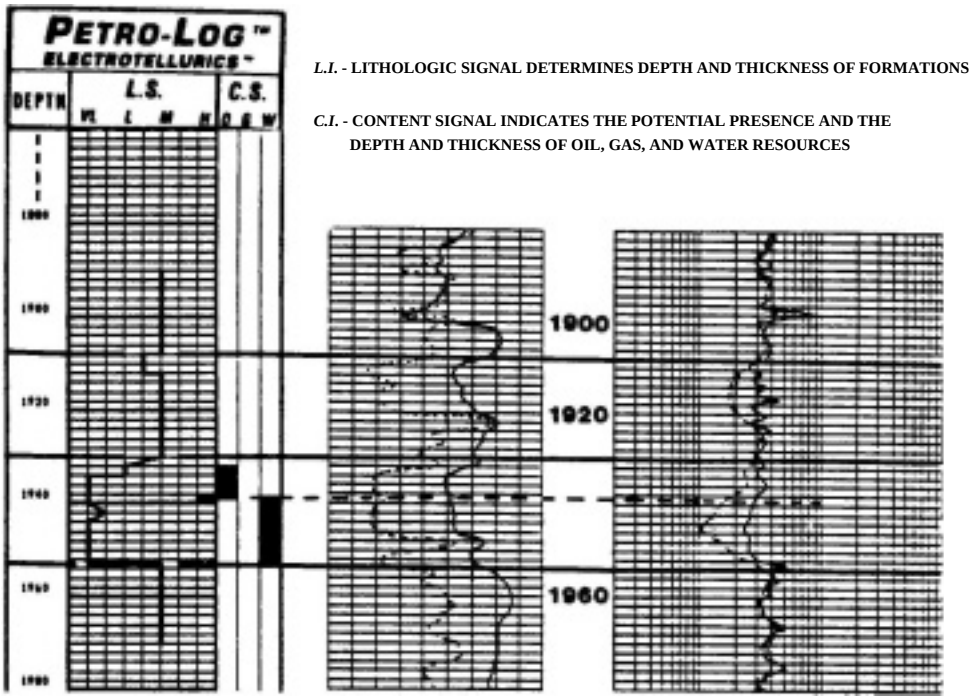
COMPARISON OF PETRO-LOG GENERATED AT THE SURFACE AND ELECTRIC LOG.



L.I. - LITHOLOGIC SIGNAL DETERMINES DEPTH AND THICKNESS OF FORMATIONS

C.I. - CONTENT SIGNAL INDICATES THE POTENTIAL PRESENCE AND THE DEPTH AND THICKNESS OF OIL, GAS, AND WATER RESOURCES

FIGURE 1: TIGHT SAND RESPONSE.

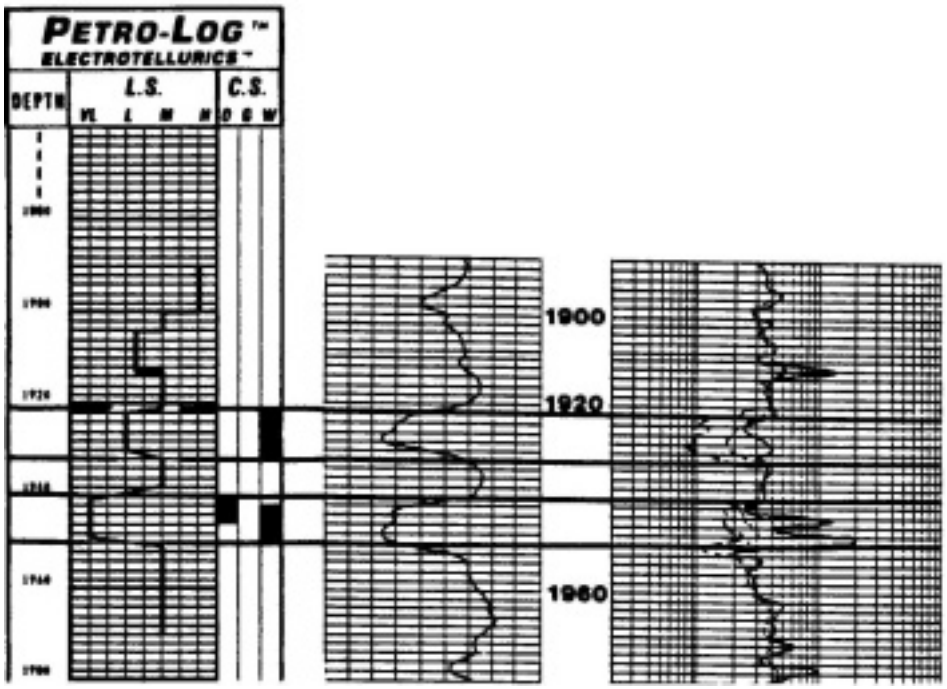


FIGURE 2: POROUS SAND RESPONSE.