

CASE HISTORY

GAS ZONE CONFIRMATION IN LIQUID-FREE BOREHOLE

APPLICATION

Production enhancement

TECHNOLOGY

MPNN

LOCATION

Southern North Sea

CUSTOMER CHALLENGE

A well with existing perforations was identified as a candidate for perforation of a previously non-tested zone. Open hole logs several years earlier appeared to show the zone to be gas bearing. The customer wished to confirm this, and to also ensure no change in formation saturation had occurred, by logging the zone with a pulsed neutron tool in thermal decay/Sigma mode. The borehole was gas-filled and the client preferred slickline as the method of conveyance. The customer sought a memory pulsed neutron tool which was not reliant on a high salinity water-filled borehole for accurate results.

SCIENTIFIC SOLUTION

With SDI's MPNN system, the customer had the ideal solution for their data acquisition requirements. Being a neutron-detecting tool, it works very effectively in gas environments with the neutron counts maximized, providing far greater statistical accuracy than gamma-ray-detecting pulsed neutron technology. The tool was logged across the interval of interest twice and the pass data stacked to improve the signal-to-noise-ratio.

CUSTOMER VALUE

By utilizing neutron-detecting pulsed neutron technology, the customer was able to avoid the costs associated with filling the borehole with water and risking damage to the formation across the existing perforated zone. The results from the MPNN confirmed the presence of a gas zone and on this basis the customer proceeded with perforating the zone. Upon perforating the zone, additional gas production of 480,000 Nm³/day was observed.

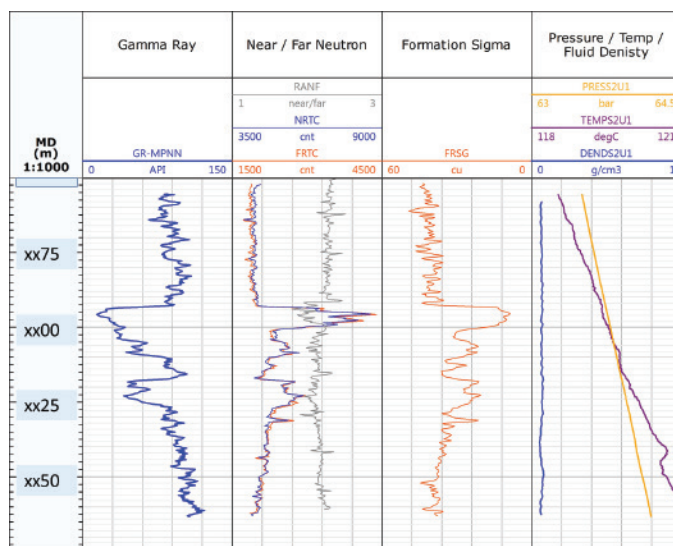


Fig.1: MPNN data over zone of interest shows presence of porous and hydrocarbon bearing zone

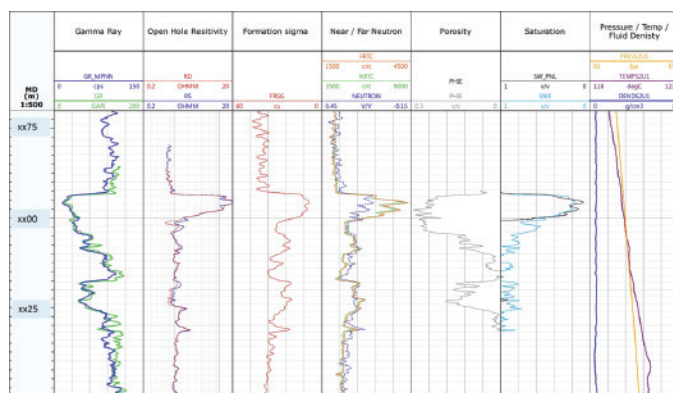


Fig.2: Comparison of MPNN and Open hole data show good agreement between Gamma, Resistivity vs Sigma and Neutron readings