

## WELL LOG CORRELATION OF THREE VERTICAL WELLS IN THE NIGER DELTA

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### ABSTRACT

This study presents correlation analysis of three wells in X-field in the Niger Delta, using three well logs namely Spontaneous Potential (SP), gamma ray (GR) and deep induction log (ILD). Two basic steps were followed in the correlation analysis. These steps are sand and shale correlation in the borehole. The sand and shales were first differentiated by the GR based on the relative occurrence of radioactivity in sand and shale. SP log differentiates permeable and impermeable beds based on differences in mud filtrate in the borehole and formation water. Three major sands were correlated. These sands are sand 1, sand 2 and sand 3 at 4800ft (1463m), 4950ft (1509m) and 5150ft (1570m) respectively at measured depths in all the wells. Sand 1, 4800 sand is in the same position in all the Wells. In Well A-2, radioactive sand was identified at 5000ft measured depth. This is equivalent to 4950ft sand in Wells A-1 and A-3. The shale correlation was done using Deep Induction Log (ILD). Three Shale Resistivity markers (SRM) were identified in the wells. These are SRM1, SRM 2 and SRM 3.

**KEYWORDS:** Spontaneous Potential, Gamma ray, Induction, Resistivity, Shale, Sand