PDK-100 LOG EXAMPLES IN THE GULF COAST

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ABSTRACT

The PDK-100 is a completely new pulsed neutron capture logging system which enhances current log analysis capabilities through the use of the additional measurements provided by the instrument.

Presented is a brief description of the new instrument, a summary of some of the new information and analysis techniques, and field examples from the Gulf Coast area demonstrating new and enhanced interpretation techniques.

INTRODUCTION

The Dresser Atlas PDK-100 (Pulse and Decay, 100 channels) is the new microprocessor controlled version of the Neutron Lifetime Log® (NLL).[1] The name change has been made to show that rather than just improving the present system, Dresser Atlas has developed a new revolutionary state-of-the-art pulsed neutron 1-3 logging system. The PDK tool has all the capabilities of the previous NLL along with many additional features made available through greatly improved count rate and timing resolution. XX

The use of background, both as an interpretive technique, and as part of a background subtraction sytem, makes the PDK-100 useful in flowing wells and in the diagnosis of water flow conditions such as channeling.

Several Gulf Coast log examples demonstrate many new capabilities, including the use of a measurement of inelastic gamma rays to provide borehole diagnostic capabilities. In addition, the Measured Standard Deviation (MSD) curve provides a real time statistical indication of the log quality and thus its repeatability.

DESCRIPTION OF PDK-100 TOOL

The name PDK-100 represents the 100 channels per detector that are used to define the neutron pulse (P) and decay (DK) spectra. Raw data from both Short Space (SS) and Long Space (LS) detectors are continuously collected in 10 microsecond wide channels both during and after the neutron burst for the entire 1000 microsecond cycle of the pulsed neutron source. Information is collected in this manner for 28 burst cycles, after which