



Memory Pulsed Neutron System (MPNN)

Pioneering in Pulsed Neutron Technology

The Scientific Drilling Memory Pulsed Neutron-Neutron (MPNN) System was the first tool of its kind in the industry. The MPNN combines conventional pulsed neutron technology with dual Helium³ neutron detectors to provide sigma monitoring and water saturation information. This data was previously only available using an expensive electric wireline conveyed toolstring.

Highly-Effective, Multi-Faceted Problem Solver

The MPNN discriminates between water, gas, and/or oil-bearing formations in cased holes. It is ideal for identifying hydrocarbons behind pipe. MPNN identifies and follows:

- Gas/oil water contacts
- Hydrocarbon migrations between zones
- Other associated problems

Significant Features

- Battery operated
- Slickline conveyed
- Accurate sigma values
- Gas/fluid contacts
- Combinable with other production logging tools
- Portability

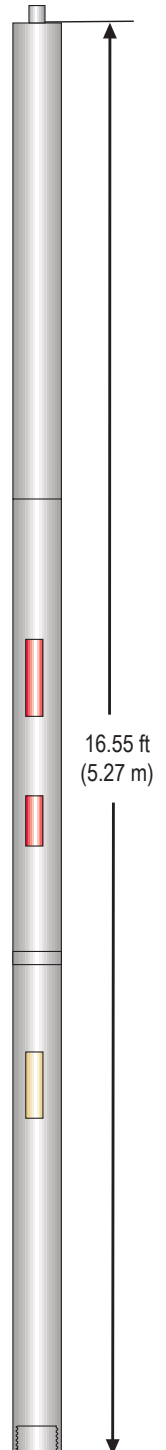
MPNN Example Log

The example log was produced by the MPNN in the Gulf of Mexico. The gas zone is clearly indicated by sigma value and near/far detector ratio. The red dashed line shows the original open hole gamma ray and resistivity logs performed approximately 14 years earlier.

Pressure and temperature probes were run with the system. The temperature shows behind pipe gas movement. While this zone was not completed in this well, it was evident production from an offset well in the same reservoir approximately 0.75 miles away was being detected.

TECHNICAL SPECIFICATIONS	
Length	16.55 ft (5.27 m)
Tool OD	1.625 in (41.3 mm) 1.69 in (42.9 mm) 1.75 in (44.5 mm)
Maximum Pressure	17,500 psi (120,660 kPa) 16,000 psi (110,320 kPa) 17,500 psi (120,658 kPa)
Maximum Temperature	302°F (150°C)
Neutron Output	14 MeV/neutrons @ 2.6 X 10 ⁸ neutrons/second
Data Acquisition	64 gates, variable spacing
Memory Capacity	18 hours of logging
Battery Life	20 hours

Specifications are subject to change without notice.



Gamma Ray/Casing Collar Locator (CCL) with Pressure, Temperature, and Merged Formation Sigmas with Total Counts

