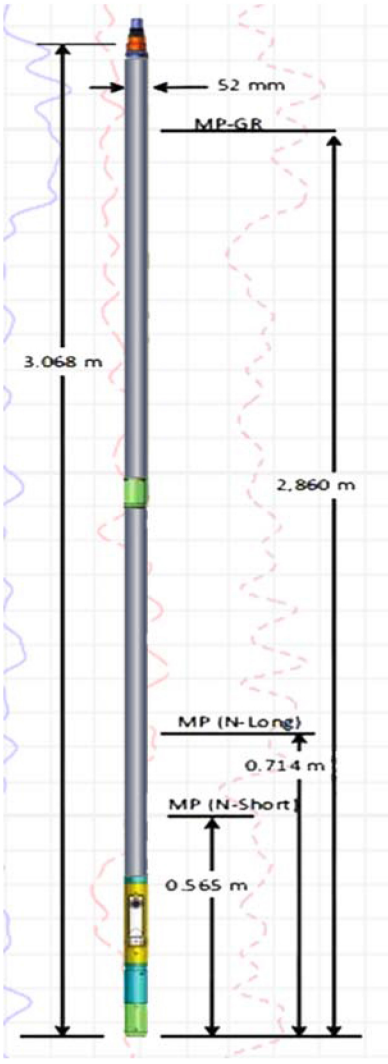
EFTECH DRILLING SOLUTIONS
Efficient | Reliable | Cost Effective

1473 COMPENSATED DUAL NEUTRON (CN) & GAMMA RAY (GR)

The 1473 Compensated Dual Neutron / Gamma Ray is a combination slim borehole logging instrument providing porosity measurement and natural gamma radiation readings from within the steel LWT drill collar.



OPERATING PRINCIPLE

The 1473 Dual Detector Neutron instrument employs a chemical nuclear source and two thermal neutron detectors. The source emits neutrons which are slowed down and then captured, primarily by hydrogen atoms in the formation fluids. The detectors count the neutrons deflected back to the tool. The ratio of the short space over the long space count rate is processed to calculate the porosity which relates to the hydrogen content of the formation. Using a scintillation detector, the combined Gamma Ray tool measures the total natural radioactivity of the formation caused by the emission of gamma rays by unstable radioactive isotopes of elements in formation.

SPECIFICATIONS

Weight:	*20 kg (44 lbs)*
Maximum Temp:	*150 deg C (300 deg F)*
Maximum Pressure:	*100 MPa (14,000 PSI)*
Neutron Detector:	*He3*
Radioactive Source:	*AmBe - 592 GBq (15 Ci)*
GR Detector:	*NaI*

Recorded Curves:
SSRaw (cps)
LSRaw (cps)
GR (cps)

Calculated Curves:
Count Rate Ratio (SS/LS)
Matrix Neutron Porosity (PU)
- *Sandstone*
- *Limestone*
- *Dolomite*

GR (API)

LOGGING PARAMETERS

Logging Speed:	*7 m/min (23 ft/min)*
Sample Rate:	*1 sample / sec*
CN Depth of Invest.:	*260 mm (10.0 in) @ 20 PU*
CN Vertical Resolution:	*570 mm (22.4 in)*
Minimum Hole Size:	*125 mm (4.9 in)*
Maximum Hole Size:	*250 mm (9.8 in)*

Measurement Range:
Porosity: 0-60%
Gamma Ray: 0-400 API

Accuracy:
Porosity:
- *0-10 PU: +/- 0.5 PU*
- *10-30 PU: +/- 8%*
- *30-60 PU: +/- 10%*

Gamma Ray:
- *+/- 2% of measured values*

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