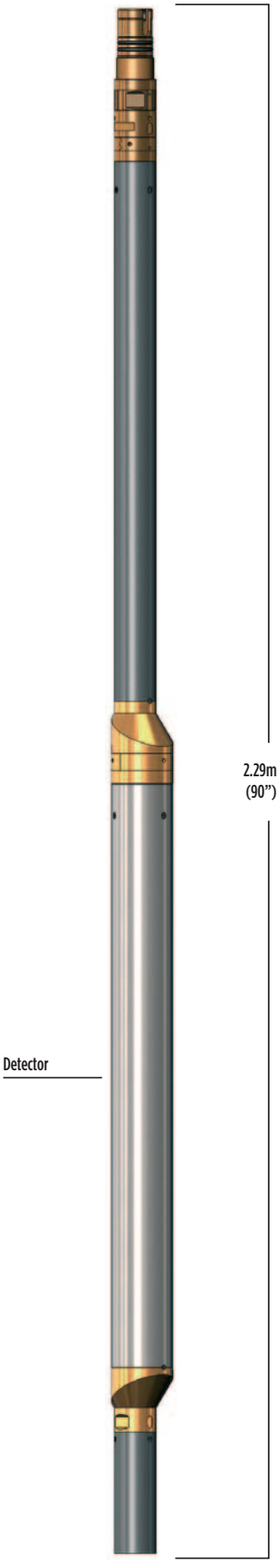
GeoKey® OPEN HOLE LOGGING SYSTEM

SPECTRAL GAMMA RAY (GSG)

ROBERTSON GEO
Unlocking Your GeoData



Spectral Gamma Ray Module

The Spectral Gamma Ray module analyses the energy spectrum of gamma radiation from naturally occurring or man-made radioactive isotopes.

The module includes a large volume detector contained in a Dewar flask for thermal stability. The Full Spectrum Analysis (FSA) technique used to compute the contributions of individual isotopes makes optimum use of all acquired data. It is also used for gain stabilisation by mapping spectral shifts between successive depth intervals. Borehole size, mud weight and probe position effects are compensated by the software.

Principle of Measurement:

Gamma photons produced by radioactive decay of unstable isotopes create light emissions in the gamma scintillation detector. The amplitude of the pulse depends of the photon energy. An analyser within the module separates the pulses into separate channels according to their amplitudes. Count-rates from groups of channels are converted in real-time by the surface software to concentrations of originating elements using preset algorithms.

SPECIFICATION:

Features
Large-volume scintillation detector for high sensitivity
Dewar flask for thermal stability
Full spectrum dynamic drift compensation

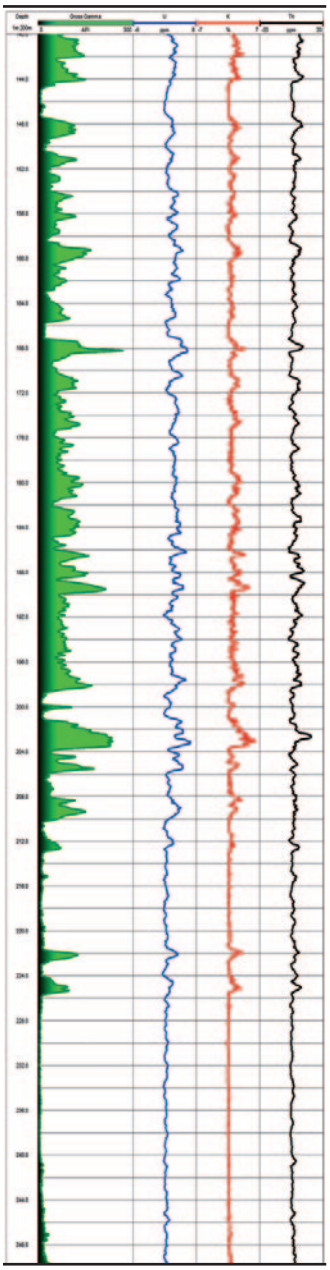
Measurements
Uranium (ppm)
Thorium (ppm)
Potassium (%)
Gross gamma
Full spectrum (static measurement)

Applications
Lithology determination
Mineral detection
Sedimentology
Improved shale-content computation
Correlation
Contamination studies

Operating Conditions	
Borehole type:	open/cased, water/air-filled

Specifications	
Diameter:	63mm (2.5") - max dia. 89mm (3.5")
Weight:	40.5kg (89.3lb)
Length:	2.29m (90")
Max. Temperature:	125°C
Max. pressure:	86MPa (12,500psi)
Detector:	Na(TI) scintillator
Detector Size:	51mm x 300mm
Energy range:	100keV to 3MeV
Number of channels:	300

Part Numbers	
1016424	Spectral Gamma Ray module
1015464	Natural-Gamma Calibration Blanket



Example of logging data

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