



**GEOPHYSICAL LOGGING PROBES**

# Spectral Gamma

SGAM

**MEASUREMENT PRINCIPLE**

Spectral gamma probes measure naturally occurring radioactivity. The most common naturally occurring radioactivity is associated with  $K^{40}$ ,  $Th^{232}$  and  $U^{232-238}$  which are associated with certain rocks (eg clays/shales) making the gamma curves an excellent lithological identifier tool. The spectral gamma probes use a scintillation system consisting of a sodium iodide crystal and a photomultiplier tube to measure gamma radiation. The Sodium Iodide crystal in the spectral gamma probe is large to measure low count rates.

The spectral gamma probe is able to measure gamma radiation with specific energy windows. The target energy windows are for  $K^{40}$ ,  $Th^{232}$  and  $U^{232-238}$  so that specific curves are generated for each isotope. The scintillation system is temperature compensated to avoid measurement drift. A small  $Cs^{137}$  source is used for spectral gamma energy window quality assurance at each borehole.

**Ideally suited for:**

- Uranium exploration and mining.
- Sedimentary studies.

**Operations & Calibration:**

- Minimum borehole diameter of 75mm.
- Air and/or fluid filled borehole.
- Open borehole and/or cased borehole.

Typically recorded in an uphole logging direction at logging speeds of 1.5 m/min.

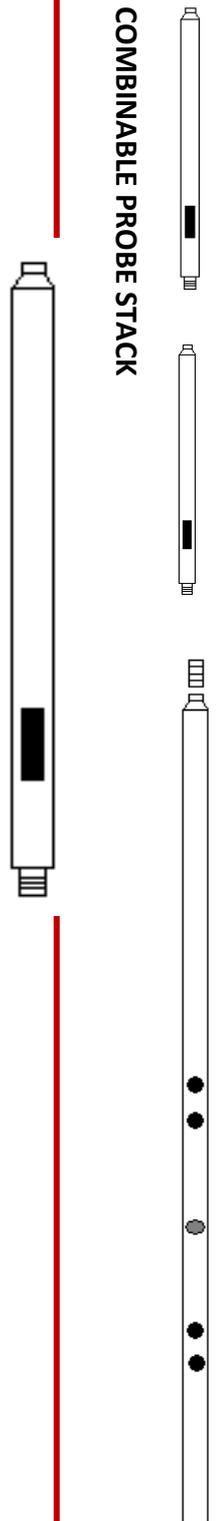
Final curve units can be counts per second, uranium grade in %eU<sub>3</sub>O<sub>8</sub> or ppm\_eU<sub>3</sub>O<sub>8</sub>, percentage K, U and TH  
 Calibration via Adelaide Models – AM6.

Probes can be stacked to the top and the bottom of the probe. Typical combinations are:

Gamma, filtered gamma, magnetic deviation, caliper, fluid temperature and conductivity.

SINGLE PROBE

COMBINABLE PROBE STACK



PHYSICAL SPECIFICATIONS	
Weight	7.0kg
Length	0.90m
Diameter	60mm
Crystal size	50mm x 150mm
Maximum Pressure	20 MPa
Maximum Temperature	80°C



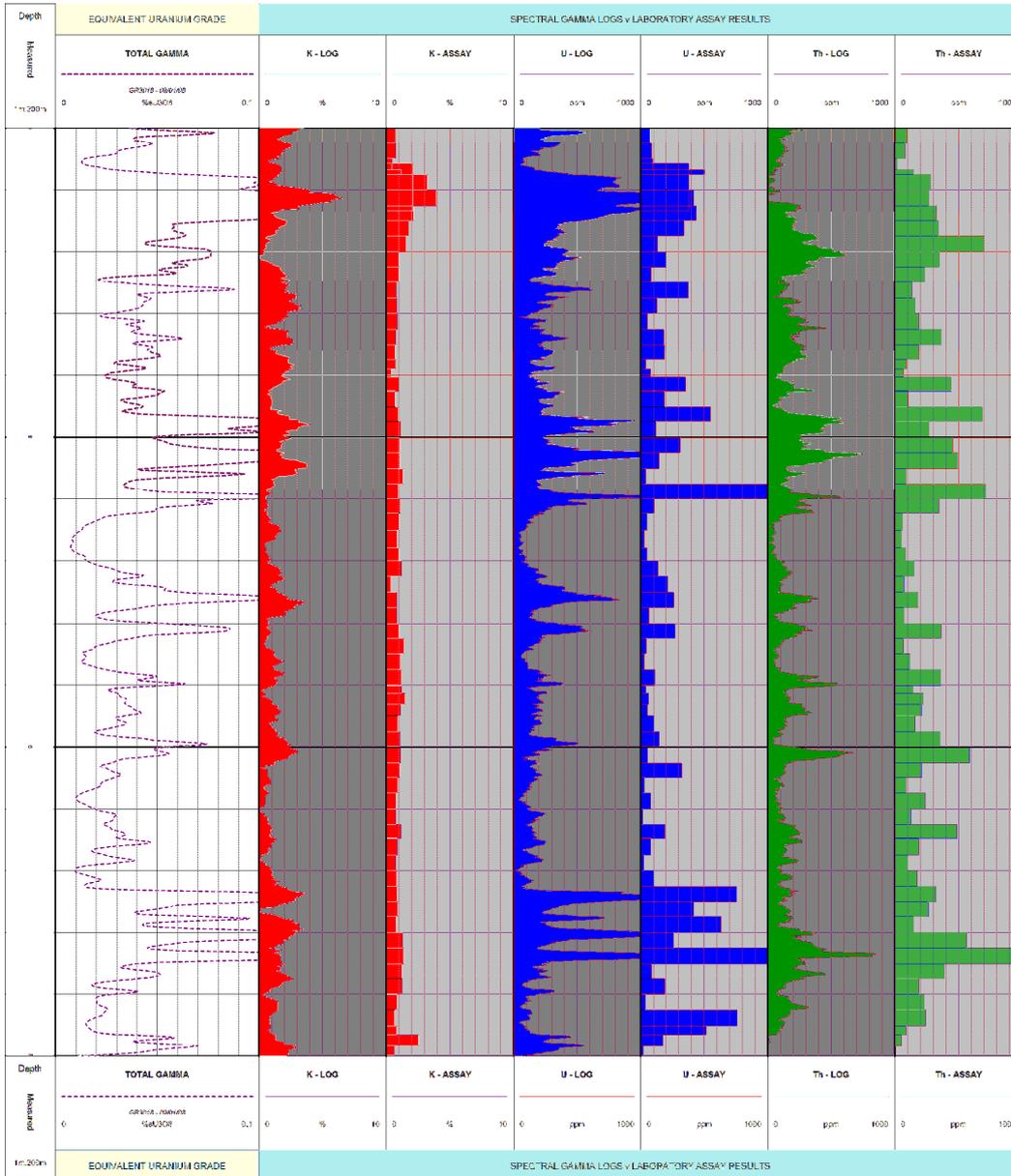


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SPECTRAL GAMMA LOGS v LABORATORY ASSAYS



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