

Open hole Closed hole

COMPLEX RADIOACTIVE LOGGING TOOL KSPRK-SH-90

The equipment was development by AO NPP VNIIGIS in cooperation with AO NPF GITAS



SCOPE OF APPLICATION

- The tool is designed for recording the energy spectra of gamma radiation from naturally radioactive rock formations, the wide-range spectra of capture gamma radiation, and the thermal neutrons flow density at two different distances from a sealed radionuclide source.

FEATURES

Multiparametric studies realized in one trip:

- The recorded data can be used for lithological stratification of the investigated section, identification of reservoir rocks, determination of their porosity coefficient and saturation type, as well as for estimating the content of naturally radioactive elements (NRE) and radiation-active elements (hydrogen, calcium, silicon, iron, chlorine, potassium, uranium, thorium, etc.).
- Surveys can be conducted in both open and cased holes with a diameter from 110 mm, with maximum hydrostatic pressure of 100 MPa and an operating temperature range from +5°C to +150°C.
- The NGK-Sh spectrometers allow simultaneous recording of automatically stabilized spectra from both low-energy (100–800 keV) and high-energy (0.8–9.0 MeV) ranges, with 256 channels for each range.

ADVANTAGES

- The equipment is built with modern scientific and technical expertise and implements all technologies for assessing geological and geophysical parameters of formations based on stationary neutron sources.
- Enables the execution of the following methods in a single run: Dual-Spaced Neutron Log (2NNK), Dual-Spaced Spectral Neutron-Gamma Log - Wide (2SNGK-Sh), and Spectral Gamma Log (SGL).
- The equipment includes
 - A downhole tool including a dual-detector SNGK-Sh spectrometer (Spectral Neutron-Gamma Log - Wide), a GR spectrometer (Gamma Ray Log), and a dual-detector NNK (Neutron Log).
 - A surface equipment set, which includes a personal computer (Notebook or IBM/PC type) and an interface unit. The interface unit ensures data transmission via the logging cable, powers the downhole tool, and communicates with the depth sensor.
 - Software

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SPECIFICATIONS

Measurable gamma quantum energy range, MeV::

- SNGK	0.1-9.00
- SGL	0.1-3.50

Number of spectrometer quantization channels:

- SNGK	256X2
- SGL	256

Measurable range of NRE content:

- Potassium, %	0.1÷50
- Uranium, ppm	1÷1000
- Thorium, ppm	1÷1000

Dead time of the spectrometric channel, μ s

Energy scale instability, max, %

Operating temperature range, °C

Operating pressure, MPa

Dimensions:

-Diameter, mm	94
-Length, m	3.3

Weight, kg