

TECHNICAL SHEET

NUCLEAR	POROSITY	DNGS
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Generalities

Principle
The dual neutron measurement uses two ^3He proportional detectors and a detachable, sealed $^{241}\text{Am-Be}$ neutron source. Fast neutrons emitted by the source are scattered and slowed to the thermal levels principally by hydrogen in the formation. The ratio of the neutron flux reaching the near and far detectors depends on the hydrogen index and porosity. Use of dual detectors and a ratio method provides a porosity measurement which is independent of hole diameter.

Results
The dual neutron probe provides a calibrated borehole-compensated neutron porosity measurement in mud-filled open holes.

Interest
Lithology identification, location of aquifer and aquitard, location of hydrocarbons (with bulk density log) etc...

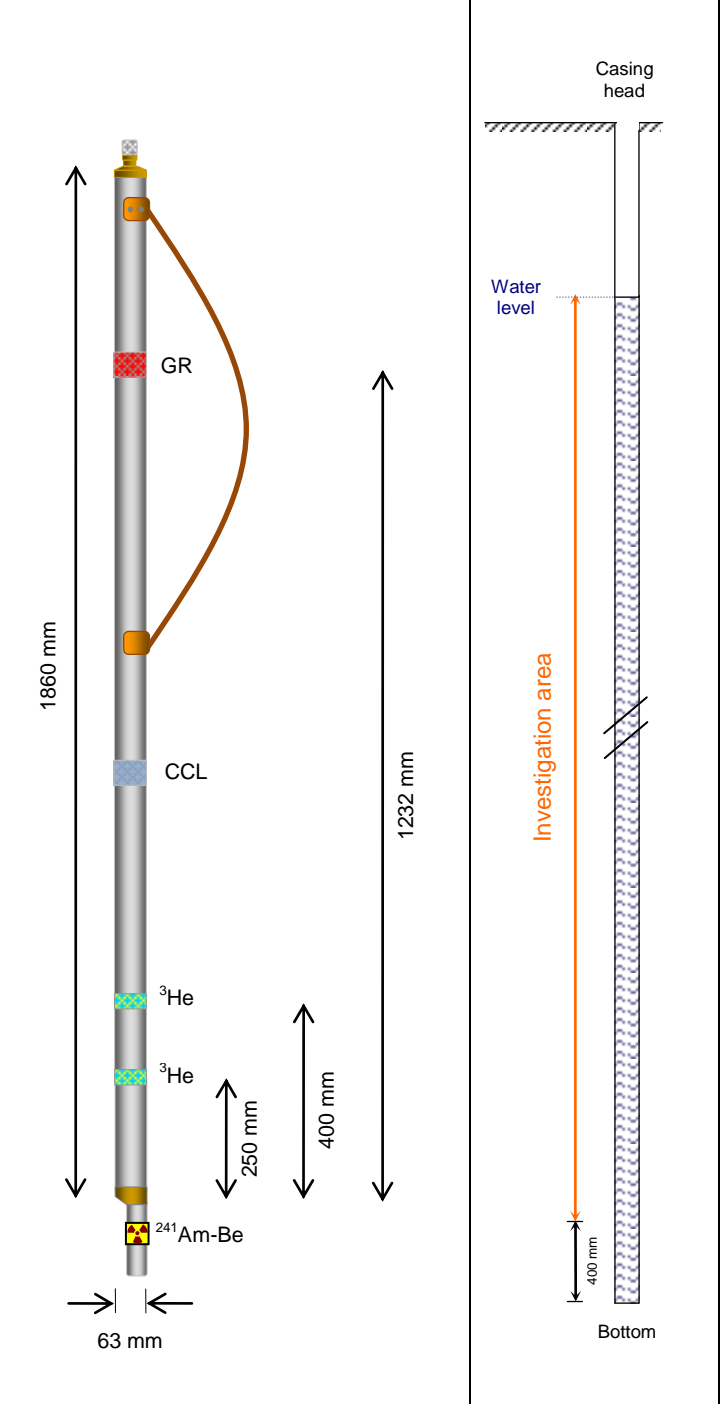
Options
Natural gamma sensor, casing collar locator.

Constraints / borehole

- | | | | |
|------------|---|---|--|
| filling up | : <input checked="" type="checkbox"/> water | : <input checked="" type="checkbox"/> mud | : <input type="checkbox"/> dry |
| casing | : <input type="checkbox"/> PVC | : <input checked="" type="checkbox"/> steel** | : <input checked="" type="checkbox"/> open |
- ** Preferentially open-hole because in steel casing, the porosity values will be in relative, not in absolute.
- | | | |
|-----------------|---|---|
| borehole | : <input checked="" type="checkbox"/> cored | : <input checked="" type="checkbox"/> destructive |
| max. depth | : 2000 m | |
| effective diam. | : 75 mm – 300 mm | |
| temperature | : 0 - 70 °C | |
| max. pressure | : 200 bars | |

Technical specifications

- Dimensions**
- length : 2060 mm
 - diameter : 63 mm
 - weight : 18,8 kg
- Elements**
- 1 sealed source : $^{241}\text{Am-Be}$
 - 2 neutron detectors : ^3He
 - 1 natural gamma sensor : GR
 - 1 casing collar locator : CCL



Technical specifications

- Records**
- Tool : centered off-centered
 - Measure : down up
 - Rec. speed : 5 m/min

- Measures**
- Range : -15 to 45% apparent limestone scale
0 to 60% apparent sandstone scale
 - Vert. resolution : 20 cm

Example

