

Fixing-Out False Cap Rocks by Radon Indication Method (RIM)

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The difference in height between a pool and an organogenous structure is a peculiar feature of reefogenous traps. This may be explained by a complex structure of nature reservoirs that usually include a "false cap rock" occurring between a reservoir and an impermeable bed. These "false cap rocks" possess low capacity properties (below 1-2%) and permeability of 0,1 to $100 \cdot 10^{-15} \text{ m}^2$.

It's really a problem to discriminate between false and real cap rocks without special investigations on core.

The present work puts forward a new method of discriminating between false and real cap rocks making use of RIM.

This new method is based on high radon sensitivity allowing to fix zones with gamma-ray effect in beds with dynamic porosity of 0,1% and permeability $0,1 \cdot 10^{-15} \text{ m}^2$.

In Pamyatno-Sasovskoye oil-field Umetovsko-Linevskaya terrigenous-carbonate thickness plays a role of a false cap rock with the permeability provided by fractures.

A false cap rock occurring between the reservoir roof and the real cap rock improves the idea of a modern reservoir structure. Oil-water contact location is controlled by the foot of the real cap rock in the area of the structure(local uplift) curve. A zone of reservoir disintegration with a 40-60% level of oil saturation was detected below the oil-water contact location. It's thickness was equal to that of the false cap rock.

Geochemistry methods worked-out and successfully used in several oil-fields in Algeria and Russia prove that discrimination between false and real cap rocks is valid and show that light hydrocarbons are usually present in false cap rocks(compared to the reservoir) while they are absent in real cap rocks.