

Calcolo R_w da SP log

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Required variables: given

Given

$$R_{mf} = 0.51 @ 135^\circ (\text{BHT})$$

$$R_m = 0.91 @ 135^\circ (\text{BHT})$$

Surface temperature = 60°F

Total depth = 8007 ft

Bottom Hole Temperature (BHT) = 135°F

Required variables: from Log track

SP=-40 mV

Bed thickness = 8 ft

Resistivity short normal (R_i)= $28\Omega m$

Formation depth= 7446 ft

Required variables: from Log track

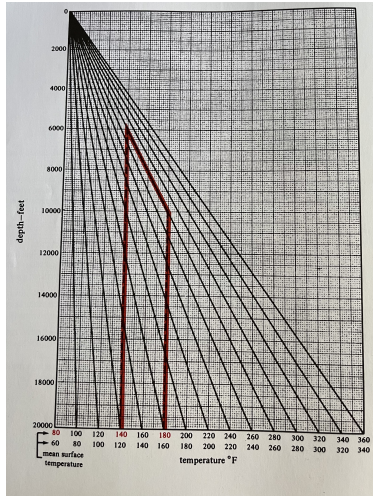


Figure: estimation of formation temperature

Correct Rmf @ 75°F

$$R_{mf}(@75^{\circ}) = R_{mf}(@T_{BHT}) \times (T_{BHT} + 6.77) / 81.77$$

Calculate K

$$K = 60 + (0.133 \times T_f)$$

Calculations (2)

calculate ratio effective resistivities

$$R_{mfe}/R_{we} = 10^{-SSP/K}$$

Calculate R_{mfe}

$$R_{mfe} = (146 \times R_{mf} - 5) / (337 \times R_{mf} + 77)$$

Calculations (3)

Calculate R_{we}

$$R_{we} = R_{mfe} / (R_{mfe} / R_{we})$$

Calculate R_w @ 75°F

$$R_w @ 75^\circ\text{F} = (77 \times R_{we} + 5) / (146 - 377 \times R_{we})$$

Calculate R_w @ T_f

$$R_w @ T_f = R_w @ 75^\circ\text{F} \times 81.77 / (T_f + 6.77) /$$