

Ex. 1

41.1. - Reg. Perm.

1D

→ prop. a ϕ

Furcraes

$$(a) \quad q = 0,001127 \frac{kA}{\mu L} (p_1 - p_2)$$

$$= 0,001127 \cdot 180 \cdot 300 \frac{(2100 - 1900)}{200} = 20,986 \text{ bbl/dia}$$

$$(b) \quad v_{ap} = \frac{q}{A} = \frac{20,986 \cdot 1590 \cdot 1 \times 10^{-3} \text{ m}^3/\text{c}}{200 \text{ ft}^2 \cdot 0,092903 \text{ m}^2/\text{ft}^2} = 0,1796 \text{ m/s}$$

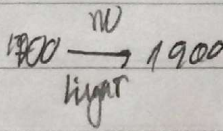
$$(c) \quad v_{REAL} = \frac{v_{ap}}{\phi} = \frac{0,1796}{0,15} = 1,197 \text{ m/s}$$

$$(d) \quad p(x) = p_1 - 887,31 \frac{\text{g.p.}}{kA} \cdot x = 2100 - 887,31 \frac{20,986 \cdot 2,9}{180 \cdot 300} \cdot x$$

em $x = 150 \text{ ft}$

$$p(150) = 1950 \text{ psi}$$

(e) mesmo que (a)



Exemplo PLANO INCLINADO

$$(c) \alpha = 15^\circ$$

$$q = 0,001127 \cdot \frac{kA}{\mu} \frac{(\bar{\Phi}_1 - \bar{\Phi}_2)}{L}$$

$$\text{Sendo } \bar{\Phi}_1 = 2000 \text{ psi}$$

$$\bar{\Phi}_2 = p_2 + \frac{\rho}{144} \Delta z = 0/990 + \frac{42}{144} \cdot 2000 \sin(15^\circ) = 2144 \text{ psi}$$

$$q = 0,001127 \cdot \frac{100 \cdot 6000}{2} \cdot \frac{(2000 - 2144)}{2000} = -23,836 \text{ bbl/dia}$$

Ex 3

(a) usando $p_{ref} = p_1$

$$q_1 = 0,00127 \frac{kA}{\mu c L} \ln [1 + c(p_1 - p_2)] =$$

$$= 0,00127 \cdot 180 \cdot 300 \ln [1 + 2,1 \times 10^{-4} (2100 - 1900)] =$$
$$\frac{29 \cdot 2,1 \times 10^{-4} \cdot 200}{29 \cdot 2,1 \times 10^{-4} \cdot 200} =$$

20,557 bbl/dia

idem q_2

$$q_2 = 0,00127 \cdot \frac{kA}{\mu c L} \ln \left[\frac{1}{1 + c(p_2 - p_1)} \right] = 21,439 \text{ bbl/dia}$$

SP1706

EXERCÍCIO RADIAL

→ Reg. Perm. → Radial → Sprongres.

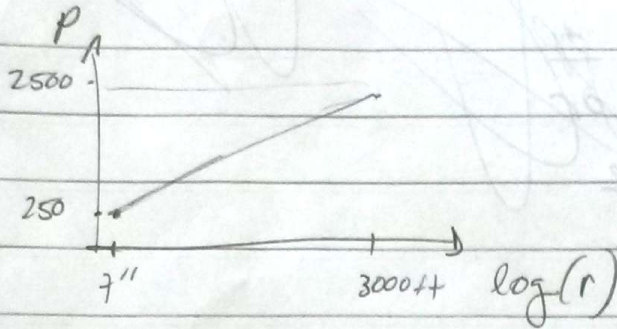
$$\begin{aligned} (a) \quad \frac{q}{B_0} - \frac{q_{\text{res}}}{B_0} &= \frac{1}{B_0} \cdot 0,00708 \frac{h k}{\mu} \frac{(P_e - P_w)}{\ln(r_e/r_w)} = \\ &= \frac{1}{1,25} \cdot 0,00708 \cdot \frac{25 \cdot 180}{2,5} \frac{(0,10 \cdot 2500)}{\ln\left(\frac{3000}{7,12}\right)} = \\ &= 298,26 \text{ bbl(SID)} \end{aligned}$$

SPRONGRES

(b)

$$R_{es} = q_{1000} \cdot B_0$$

$$P = P_w + 141,243 \frac{q \cdot \mu}{h \cdot k} \ln \left(\frac{r}{r_{w0}} \right) \quad (II)$$

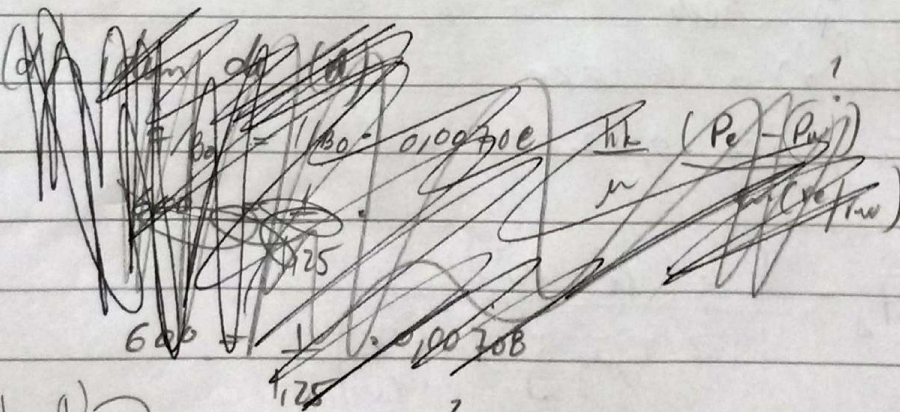


(c) qual r é onde $p = 990 \cdot 2500$ psi

$$0,95 \cdot 2500 = 99 \cdot 2500 + 141,243 \cdot \frac{298,26 \cdot 1,25 \cdot 2,1}{25 \cdot 180} \ln \left(\frac{r}{7/12} \right)$$

$$r = 41,837 \text{ ft}$$

"Raio de influência do poço"



Itamb'

$$P_w = P_{w0} + 141,243 \cdot \frac{600 \cdot 1,25 \cdot 2,1}{25 \cdot 180} \ln \left(\frac{3000}{7/12} \right)$$

$$P_w = 1997,1 \text{ psi}$$

EXERCÍCIO GÁS

Usar média de pressão $\bar{p} = \sqrt{\frac{p_w^2 + p_e^2}{2}} = 4070 \text{ psi}$

TABELA
SLIDE

$$\bar{p} \sim \text{IROS}$$

$$\bar{z}(p, T) \approx 0,860$$

$$\bar{\mu}(p, T) \approx 0,02660$$

VAZÃO POÇO

$$q_g = \frac{h k (p_e^2 - p_w^2)}{1422 T \bar{\mu}_g \bar{z} \ln\left(\frac{r_e}{r_w}\right)}$$

$$= \frac{15.65 (4400^2 - 3600^2)}{1422 \cdot 600 \cdot 0,0266 \cdot 0,860 \ln\left(\frac{2000}{7/2.12}\right)} =$$

$$= 36195 \text{ Mft}^3_{(\text{STD})} = 1025 \text{ Mm}^3_{(\text{STD})}$$

menos
comentários
se não estiver
se multifase black oil