Reserv... Engineering Data

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Recorder No. T-136 Field Report No. 07176 C

Estimated Damage Ratio	EDR	1.77		Effective Transmissibility TOTAL LIQUID	$\frac{Kh}{\mu B}$	5.51	Md-ft./Cp.
Maximum Reservoir Pressure INITIAL SHUT-IN	P_o	2269	P.S.I.G.	Effective Transmissability	$\frac{Kh}{\mu B}$	-	Md-ft./Cp.
Slope of Shut-in Curve FINAL SHUT-IN	M_1	245	PSI/log cycle	Flow Rate TOTAL LIQUID	Q	8.3	Bbl./day
Potentiometric Surface (Datum Plane, Sea Level)	PS	-1375	ft.	Pressure Gradient		.214	PSI ft.
Productivity Index	PI	.004	Bbl./day/PSI	Gas Oil Ratio	GOR	-	CF/Bbl.
Radius of Investigation		38	ft.	K (Effective to LIQUID)		.50	Md.

SLOPE M_1 = 2233 - 1988 = 245 SLOPE M_2 = 2264 - 1944 = 320 SLOPE M_3 = 2219 - 2060 = 15

Assumptions made for Calculations for Liquid Recoveries

1. Q is averaged at a constant rate.
2. P_f is formation flowing pressure at a constant rate.
3. Formation flow is taken as single phase flow.
   If gas is produced at surface, phase separation is assumed to have occurred in drill pipe.
4. Radial flow is assumed.
5. For the purpose of calculating EDR where specific reservoir parameters are not available it is assumed that:

Effective permeability, K, will fall between	1 to 200 md
Formation porosity, ϕ, will fall between	0.1 to 0.3
Fluid compressibility, c, will fall between	10^{-6} to 10^{-4}
Fluid viscosity, μ, will fall between	0.05 to 50 cp.
Well bore radius, r_w, will fall between	$3\frac{7}{8}$" to $4\frac{3}{8}$"
Which gives an average value for the function log $\frac{K}{\phi\mu c r_w^2}$ of	5.5

6. Other standard radial flow, equilibrium assumptions.

Empirical Equations:

1. $EDR = \frac{P_o - P_f}{M(\log T + 2.65)}$ where $M = \frac{P_1 - P_{10}}{\text{Log Cycle}}$
2. Transmissibility $\frac{Kh}{\mu\beta} = \frac{162.6\,Q}{M}$
3. DST $J = \frac{Q}{P_o - P_f}$ Theoretical $J = \frac{7.08 \times 10^{-3}\,Kh}{\mu\beta \ln (r_e/r_w)}$ Assumed $\ln (r_e/r_w) = 7.60$
4. P.S. = [$P_o \times 2.309$ ft./PSI] − [Recorder depth to sea level.]
5. Radius of investigation, $r_i \cong \sqrt{\frac{Kt}{40\phi\mu c}}$ where t = time in days

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