Gas Reservoir Engineering Data

JOHNSTON

Instrument No. J-1916

Field Report No. 38267E

Damage Ratio	DR	2.21	Effective Transmissibility	$\frac{Kh}{\mu}$	26.99 Md-ft./Cp.
Maximum Reservoir Pressure	P_o	2300 P.S.I.A. EST.	Flow Rate	Q_g	59 MCF day
Slope of Shut-in Curve	M_g	749 PSI. log cycle	Flow Rate Oil	Q	14 BBL/DAY
Potentiometric Surface (Datum Plane, Sea Level)	PS	------- ft.	Pressure Gradient		.20 PSI/ft.
Radius of Investigation		2 ft.	K (Effective to Gas)		.00184 Md.

SLOPE (M) = 2033 - 1284 = 749 psi/Log Cycle

Assumptions made for Calculations for Gas Recoveries

1. Q_g is taken as steady state flow and unless stated otherwise at standard conditions 14.7 P.S.I. and 60°F.
2. P_f is final formation flowing pressure at steady state flow.
3. Formation flow is taken as single phase flow. If liquid (condensate) is produced at surface, condensation is assumed to have occurred in drill pipe.
4. Radial flow is assumed.
5. Unless given, gas specific gravity is assumed to be 0.7 (air 1.0) and having pseudo critical temperature at 385° Rankin and pseudo critical pressure of 666 P.S.I.A.
6. Other standard radial flow, steady state assumptions.

Empirical Equations:

1. $EDR = \frac{P_o^2 - P_f^2}{M_g(\log T + 2.65)}$ where $M_g = \frac{P_1^2 - P_{10}^2}{\text{Log Cycle}}$
2. Transmissibility $\frac{Kh}{\mu Z} = \frac{1637^\circ T_f Q_g}{M_g}$
3. P.S. = [P_o × 2.309 ft./PSI] − [Recorder depth to sea level.]
4. Radius of Investigation, $r_i = \sqrt{\frac{Kt}{40\phi(1 - S_w)\mu c}}$ where t = time in days