

Gas Reservoir Engineering Data



JOHNSTON

Instrument No. J-376

Field Report No. 06006 D

Damage Ratio	DR	2.88	Effective Transmissibility	$\frac{Kh}{\mu}$	151,478	Md-ft. Cp.
Maximum Reservoir Pressure FINAL SHUT-IN	P _o	4055 P.S.I.G.	Flow Rate (SEPARATOR) GAS	Q _g	13,200	MCF/day
Slope of Shut-in Curve FINAL SHUT-IN	M _g	10 PSI/log cycle	Flow Rate	Q	-	
Potentiometric Surface (Datum Plane, Sea Level)	PS	2252 ft.	Pressure Gradient		0.376	PSI/ft.
Radius of Investigation		591 ft.	K (Effective to GAS)		53.6	Md.

$$\text{SLOPE } M_g = 4070 - 4060 = 10$$

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:

$$1. \text{ EDR} = \frac{P_o^2 - P_f^2}{M_g (\log T + 2.65)} \text{ where } M_g = \frac{P_i^2 - P_{io}^2}{\text{Log Cycle}}$$

$$2. \text{ Transmissibility } \frac{Kh}{\mu Z} = \frac{1637^\circ T_r Q_g}{M_g}$$

$$3. \text{ P.S.} = \left[P_o \times 2.309 \text{ ft./PSI} \right] - \left[\text{Recorder depth to sea level.} \right]$$

$$4. \text{ Radius of Investigation, } r_{i,} = \sqrt{\frac{Kt}{40\phi(1 - S_w)\mu c}} \text{ where } t = \text{time in days}$$

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