

Calculations of Remaining Reserves, Federal HQ #1, N-5-215-221

Canyon PFS 6020-6110

$$P_c = 673, T_c = 376, T_s = 118^\circ F$$

$$151 \text{ BHP} - 6/5/78 - 2228 \text{ psig @ } 6060'; P_R = 3.330, T_R = 1.537, Z_o = .789$$

$$\text{Pres. 51 BHP} - 1/9/79 - 1785 \text{ psig @ } 6060'; P_R = 2.672, Z_o = .805$$

Cum Prod. 5675 mcf, no condensate

$$\text{Assume Abandonment Pressure @ } 5\% \text{ of orig. } P_R = 112 \text{ psia}, P_R = .167, Z_A = .984$$

$$\begin{aligned} \text{Then Remaining Permian Reserves} &= \frac{P_i - P_A}{P_o - P_i} N_p = \frac{1798.7/.805 - 112/.984 (5675) \text{ mcf}}{2241.2/.789 - 1798.7/.805} \\ &= \frac{2233.8 - 113.8 (5675)}{2840.6 - 2233.8} = 19827 \text{ mcf} \end{aligned}$$

Atoka PFS 7967-78, 8076-90

$$P_c = 685, T_c = 376, T_s = 134^\circ F$$

$$151 \text{ BHP} - 11-2-77 - 2997 \text{ psig @ } 8025'; P_R = 4.394, T_R = 1.580, Z_o = .818$$

$$\text{BHP @ } 4-4-78 - 2011 \text{ @ } 8025'; P_R = 2.955, Z_o = .817$$

$$\text{Assume Abandonment Pressure @ } 5\% \text{ orig or } 150 \text{ psia}; P_R = .219, Z_A = .981$$

Cum. Prod to 4-4-78 = 6949 psig, neg. condensate.

$$\begin{aligned} \text{Then Remaining Atoka Reserves} &= \frac{P_i - P_A}{P_o - P_i} N_p = \frac{2024.7/.817 - 150/.981 (6949) \text{ mcf}}{3010.7/.818 - 2024.7/.817} \\ &= \frac{2477.6 - 152.9 (6949)}{3680.0 - 2477.6} = 13435 \text{ mcf} \end{aligned}$$

It is suggested that future commingled production should be allocated on basis of remaining reserves as follows:

$$\text{Wildcat - Permian Penn: } 19827 \text{ mcf} = 60\%$$

$$\text{Little Box Canyon Atoka: } 13435 \text{ mcf} = 40\%$$

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