Federal GR Com #1 SW SW Sec 25-17S-24E Eddy Co

Eagle Creek Strawn:

Pf. 7404-7408 0.26 φft 0.78 S_g. β_g = .006568 μ_g = .019cp.

BHP = 2127 psi BHT = 129°F P_c = 675 T_c = 366 Z = .826. ϕ_{avg} = 6.5%

$K_{gh} = \frac{q \mu T Z \ln \frac{r_e}{r_w}}{.703 \phi P^2 / P_{avg}} = \frac{25000}{5.615}\frac{(.006568)}{(.703)}\frac{(.019)(538)(.826)(5.23)}{(2140^2 - 922^2)/1165} = \frac{2911.03}{604.42} = 0.49$ md-ft h = 4ft, k = 0.12 md.

Most Probable Recovery Factor (After Craze & Buckley Statistics):

$= 0.11403 + .2719 \log k_e + .25569 S_w - .1355 \log \mu - 1.538 \phi - .00035h$

$= 0.11403 - 0.25037 + 0.19944 + 0.23323 - 0.09997 - 0.00140$

$= 0.19496$

Then most probable reserves =

$43560 ft^3/ac \times 320 ac \times 0.19496 RF \left[\frac{0.26 \phi ft \times 0.78 S_g}{0.006568 \beta_g}\right] = 83930$ mcf.

Eagle Creek Permo-Penn:

Pf 7248-7254, 0.68 φft 0.76 S_g β_g = .006559 μ_g = .019cp φ = 11.3% h = 6ft

BHP = 2115 psi BHT = 127°F P_c = 675 T_c = 366 Z = .823

$K_{gh} = \frac{q \mu T Z \ln \frac{r_e}{r_w}}{.703 \phi P^2 / P_{avg}} = \frac{75000}{5.615}\frac{(.006559)}{(.703)}\frac{(.019)(587)(.823)(5.23)}{(2128^2 - 43^2)/1110.5} = \frac{5982.56}{4070} = 1.47$ md-ft k_g = .24 md.

Most Probable Recovery Factor (After Craze & Buckley Statistics)

$= 0.11403 - 0.16649 + 0.19432 + 0.23323 - 0.17687 - 0.00210 = 0.19652$

Pf 6214-6221, 0.477 φft 0.91 S_g β_g = .006372 μ_g = .019 cp φ = 3.67%

BHP = 2032 psi BHT = 118°F P_c = 673 T_c = 383 Z = .781 h = 13 ft

$K_{gh} = \frac{q \mu T Z \ln \frac{r_e}{r_w}}{.703 \phi P^2 / P_{avg}} = \frac{640000}{5.615}\frac{(.006378)}{(.703)}\frac{(.019)(578)(.781)(5.23)}{(2045^2 - 184^2)/1047} = \frac{46386.7}{3792} = 12.23$ md-ft k = 0.94 md.

Most Probable Recovery Factor (After Craze & Buckley Statistics):

$= 0.11403 - .00731 + .23218 + .23323 - 0.05644 - .00455 = 0.51164$

Then most probable reserves =

$43560 ft^3/ac \times 320 ac \times \left[\frac{.1965(0.68 ft)(.76 S_g)}{.006559 \beta_g} + \frac{.5116(.477 ft)(.91 S_g)}{.006372}\right]$

$= 13939200 ft^2 (15.483 + 34.818) = 701150$ mcf.

We propose to commingle the Eagle Creek Strawn and the Eagle Creek Permo Penn, and to apportion production as follows:

Gas: Strawn — 83930 mcf = 10.69%

Permo Penn — $\frac{701150}{785080}$ mcf = 89.31%

Condensate: Strawn — 83930/4226 b/mcf = 199 bbls = 10.76%

Permo Penn — 701150/4256 b/mcf = $\frac{1650}{1849}$ bbls = 89.24%.