BASIN DAKOTA
SECTION 4-T27N-R10W
1st SAND

Fluid Properties

Gas Gravity	=	0.646	Gas Analysis
T_c	=	365°R	Standing's Correlation
P_c	=	678 psi	Standing's Correlation
T_r	=	150 °F	Log Measurement
P_{ri}	=	2,400 psi	Public Data
P_{ra}	=	400 psi	Estimate
B_{gi}	=	0.00611 ft^3/SCF	Standing & Katz's Correlation
B_{ga}	=	0.04139 ft^3/SCF	Standing & Katz's Correlation

Calculate Theoretical Recovery Factor:

$$RF_t = 1 - \frac{B_{gi}}{B_{ga}}$$

$$RF_t = 1 - \frac{0.00611}{0.04139}$$

$$RF_t = 0.8524 \text{ (fraction)}$$

Rock Properties

Acre - Feet	=	6,722	Planimetered from net sand thickness maps
Average Porosity	=	0.09	(Fraction) $\varnothing_{dn}$ Avg. of offsets
Water Saturation	=	0.44	(Fraction) Avg. of offsets

Calculate GIP, Theoretical and Actual EUR:

$$GIP = \frac{.04356 A h_{\phi} (1 - S_w)}{B_{gi}} MMCF$$

$$GIP = \frac{.04356(6,722)(0.09)(1-0.44)}{0.00611} MMCF$$

GIP = 2,415 MMCF

EUR_t = RF_t x GIP

EUR_t = (0.8524)(2,415)

EUR_t = 2,059 MMCF

CROSS TIMBERS OIL COMPANY
Barry Voigt
11/13/00

BASIN DAKOTA
SECTION 4-T27N-R10W
2nd SAND

Fluid Properties

Gas Gravity	=	0.646	Gas Analysis
T_c	=	365°R	Standing's Correlation
P_c	=	678 psi	Standing's Correlation
T_r	=	150 °F	Log Measurement
P_{ri}	=	2,400 psi	Public Data
P_{ra}	=	400 psi	Estimate
B_{gi}	=	0.00611 ft^3/SCF	Standing & Katz's Correlation
B_{ga}	=	0.04139 ft^3/SCF	Standing & Katz's Correlation

Calculate Theoretical Recovery Factor:

$$RF_t = 1 - \frac{B_{gi}}{B_{ga}}$$

$$RF_t = 1 - \frac{0.00611}{0.04139}$$

$$RF_t = 0.8524 \text{ (fraction)}$$

Rock Properties

Acre - Feet	=	5,533	Planimetered from net sand thickness maps
Average Porosity	=	0.15	(Fraction) $\varnothing_{dn}$ Avg. of offsets
Water Saturation	=	0.35	(Fraction) Avg. of offsets

Calculate GIP, Theoretical and Actual EUR:

$$GIP = \frac{.04356 A h_{\phi} (1 - S_w)}{B_{gi}} MMCF$$

$$GIP = \frac{.04356(5,533)(0.15)(1 - 0.35)}{0.00611} MMCF$$

GIP = 3,846 MMCF

EUR_t = RF_t x GIP

EUR_t = (0.8524)(3,846)

EUR_t = 3,278 MMCF

BASIN DAKOTA
SECTION 4-T27N-R10W
3rd SAND

Fluid Properties

Gas Gravity	=	0.646	Gas Analysis
T_c	=	365°R	Standing's Correlation
P_c	=	678 psi	Standing's Correlation
T_r	=	150 °F	Log Measurement
P_{ri}	=	2,400 psi	Public Data
P_{ra}	=	400 psi	Estimate
B_{gi}	=	0.00611 ft^3/SCF	Standing & Katz's Correlation
B_{ga}	=	0.04139 ft^3/SCF	Standing & Katz's Correlation

Calculate Theoretical Recovery Factor:

$$RF_t = 1 - \frac{B_{gi}}{B_{ga}}$$

$$RF_t = 1 - \frac{0.00611}{0.04139}$$

$$RF_t = 0.8524 \text{ (fraction)}$$

Rock Properties

Acre - Feet	=	24,451	Planimetered from net sand thickness maps
Average Porosity	=	0.09	(Fraction) $\varnothing_{dn}$ Avg. of offsets
Water Saturation	=	0.35	(Fraction) Avg. of offsets

Calculate GIP, Theoretical and Actual EUR:

$$GIP = \frac{.04356 A h_{\phi} (1 - S_w)}{B_{gi}} MMCF$$

$$GIP = \frac{.04356(24,451)(0.09)(1 - 0.35)}{0.00611} MMCF$$

GIP = 10,198 MMCF

EUR_t = RF_t x GIP

EUR_t = (0.8524)(10,198)

EUR_t = 8,692 MMCF

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