

ESTIMATED RESERVES
 (Material Balance Method)
 East Saunders Permo-Penn Pool
 Lea County, New Mexico

Case No. 2678
 Exhibit No. 9
 10/28/64

BASIC DATA:

Oil Reserves ~~1318~~²²¹¹ bbl./acre (Volumetric Method)

Compressibility of reservoir fluid, connate water and formation,
 24.4×10^{-6} psi⁻¹ in pressure range 3914-2631 psig

Reservoir pressure decline to 1/25/63, 1283 psi

Oil production to 1/25/63, 103,100 ST bbl.

Formation volume factor at 1/25/63 pressure, 1.557 bbl./bbl.

Formation volume factor at original pressure, 1.527 bbl./bbl.

Recovery factor 42.2 (Material Balance - Schilthius Method)

CALCULATION:

Original Oil in Place = $\frac{(N_p) (B_o)}{(C_e) (\Delta P) (B_{oi})}$

Original Oil in Place = $\frac{(103,100) (1.557)}{(24.4 \times 10^{-6}) (1283) (1.527)}$

Original Oil in Place = 3,360,000 ST bbls.

Where:

Np = Stock-tank oil production

Ce = Compressibility of reservoir fluid, connate water and formation

ΔP = Pressure decline accompanying production

Bo = Formation volume factor at final pressure.

Boi = Formation volume factor at original pressure

Ultimate Oil Recovery = (3,360,000 St bbl.) (0.422) = 1,418,000 ST bbl.

Indicated Drainage Area = $\frac{1,418,000 \text{ ST bbl.}}{2211 \text{ ST bbl./acre}} = 642 \text{ acres}$

Ultimate Gas Recovery = 3,360 X .939 X .79 = 2,490 MMcf

BEFORE EXAMINER NUTTER
 OIL CONSERVATION COMMISSION
 EXHIBIT NO. 9
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