

**Radial Flow Equation for Compressible Flow
No Flow Across Lease Line
Lea (Wolfcamp) Field**

$$Q = 39.3 \frac{hk}{u} \frac{P_m}{P_w} \frac{\Delta P}{\ln(\frac{r_e}{r_w})}$$

$$\ln(\frac{r_e}{r_w}) = \frac{39.3}{Q} \frac{hk}{u} \left(\frac{P_m}{P_w} \right) (\Delta P)$$

Let $(\frac{r_e}{r_w})_{JORDAN} = (\frac{r_e}{r_w})_{NEUHAUS}$
Or No Flow at Lease Line

$$\left[39.3 \frac{hk}{u} \left(\frac{P_m}{P_w} \right) \left(\frac{\Delta P}{Q} \right) \right]_{JORDAN} = \left[39.3 \frac{hk}{u} \left(\frac{P_m}{P_w} \right) \left(\frac{\Delta P}{Q} \right) \right]_{NEUHAUS}$$

If Both Wells Have Equal Capacity

$$\left[\frac{k}{u} \right]_{JORDAN} = \left[\frac{k}{u} \right]_{NEUHAUS} \quad \& \quad \left(\frac{P_m \Delta P}{P_w} \right)_{JORDAN} = \left(\frac{P_m \Delta P}{P_w} \right)_{NEUHAUS}$$

$$\left[\frac{h}{Q} \right]_{JORDAN} = \left[\frac{h}{Q} \right]_{NEUHAUS}$$

$$Q_{NEUHAUS} = \frac{(Q_{JORDAN})(h_{NEUHAUS})}{(h_{JORDAN})}$$

**BEFORE THE
OIL CONSERVATION DIVISION
Santa Fe, New Mexico**

Case No. 10796 Exhibit No. 11

$$Q_{NEUHAUS} = Q_{JORDAN} (119/62)$$

Submitted by: Manzano Oil Corporation

Hearing Date: August 12, 1993

$$Q_{NEUHAUS} = 1.92 Q_{JORDAN}$$

Conclusion: **To prevent Flow Across
Lease Line and Protect Correlative Rights,
the Manzano Neuhaus Fed. No. 2
Would have to Produce at a
Rate Almost Twice that of the
Marathon - Jordan "B" No. 1.**