VOLUMETRIC RESERVE CALCULATIONS
EXAMPLE WELL: BARBARA FEDERAL NO. 1
NORTH DAGGER DRAW

Completion: 8/71 **Plugged & Abandoned:** 12/86

Cumulative Oil Production: 272 MBO

$$\text{Oil Reserves} = \frac{7758 \cdot \phi \cdot (1 - S_w) \cdot Ac \cdot H \cdot RF}{Bo}$$

(1) Volumetric Equation w/1976 Parameters:

$$\text{Oil Reserves} = \frac{7758 \cdot 6\% \cdot 50\% \cdot 160 \text{ acres} \cdot 50' \cdot 30\%}{2.0}$$

$$= 270 \text{ MBO}$$

ϕ = 6% (from porosity log)
Ac = 160 acres
RF = 30% (Maximum recovery factor for solution gas drive)
S_w = 50%
H = 50' (perfed interval)
Bo = 2.0 (volatile oil)

(2) Volumetric Equation w/1991 Parameters:

$$\text{Oil Reserves} = \frac{7558 \cdot 12\% \cdot 50\% \cdot 60 \text{ acres} \cdot 75' \cdot 30\%}{2.0}$$

$$= 314 \text{ MBO}$$

ϕ = 12% (visual estimate from CBIL)
Ac = 160 acres
RF = 30%
S_w = 50%
H = 75'
Bo = 2.0

BEFORE EXAMINER
OIL CONSERVATION DIVISION
EXHIBIT NO. 13
CASE NO. 10221
Submitted by Conoco Inc.
Hearing Date 2-7-91

EXHIBIT 13