

CALCULATION OF RESERVOIR AREAL EXTENT

	MAXIMUM RECOVERED TEMPERATURE <u>DEGREES, FAHRENHEIT</u>	ORIGINAL SHUT-IN BHP, PSI
LOWE ST. #1	182	4,683
HUMBLE A ST.	165	4,505
TOWNSEND	168	5,622
#2 ETA STATE	<u>190</u>	<u>6,243</u>
TOTAL	705	21,053
AVERAGE	176	5,263

ULTIMATE GAS RECOVERY = 44,723,000 MCF FROM DECLINE CURVES

GAS SPECIFIC GRAVITY = 0.631

$$* B_g = 35.35 \frac{p}{ZT} \text{ SCF/RES Ft}^3$$

$$* P_c = 670 \text{ PSIA}$$

$$* T_c = 368 \text{ DEGREES RANKINE}$$

$$* P_r = \frac{5,278 \text{ psia}}{670} = 7.88$$

$$* T_r = \frac{460 + 176}{368} = 1.73$$

$$* Z = 1.01$$

$$* B_g = \frac{(35.35) (5,278 \text{ psia})}{(1.01) (176^\circ\text{F} + 460)} = 290 \text{ SCF/RES Ft}^3$$

THEREFORE, RES Ft³ REQUIRED TO CONTAIN 44,723 MMCF (DECLINE CURVE) + .85 RECOVERY FACTOR = 52,615 MMSCF ORIGINAL GAS IN PLACE (OGIP) + 290 SCF/RES FT³ = 181,431,035 RES FT³

$$(43,560 \text{ FT}^3/\text{AF}) (.103 \text{ POROSITY}) (1 - .20 \text{ Sw}) = 3,589 \text{ RES Ft}^3/\text{AF}$$

$$\text{THEREFORE } 181,431,035 \text{ RES Ft}^3 \div 3,589 \text{ RES Ft}^3/\text{AF} = 50,552 \text{ AF}$$

IF NET PAY AVERAGE 20 Ft + 16 Ft + 16 Ft + 9 Ft = 61 Ft + 4 = 15.25 FEET
(ASSUME AVERAGE OVER DRAINAGE AREA)

$$\text{THEREFORE, ACRES NEEDED TO CONTAIN OGIP} = \frac{50,552}{15.251} = 3315 \text{ A} = 5.2 \text{ SEC}$$

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NEW MEXICO
OIL CONSERVATION DIVISION
MOC EXHIBIT 8
CASE NO. 11842