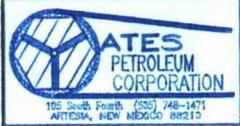


-  = CALCULATED DRAINAGE AREA
-  = GAS WELL (ULTIMATE RESERVES MMCF)
-  = 1992 NEW WELL (INITIAL BHP)
-  = PROPOSED DRILLWELL



ATES
PETROLEUM
CORPORATION

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ARTESIA, NEW MEXICO 88213

8/93 (VM)
DRAFT\A93020D

PECOS SLOPE ABD
6S-25E
CALCULATED DRAINAGE AREA AND
ULTIMATE GAS RESERVES (MMCF)

SCALE: 1"=4000'

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

Case No. 10793 Exhibit No. 13

Submitted by: Yates Petroleum Corporation

Hearing Date: August 12, 1993

PECOS SLOPE ABO DRAINAGE AREA CALCULATIONS

$$EUR = 1,540 A h \phi (1 - S_w) \frac{\left(\frac{P_i}{Z_i} - \frac{P_a}{Z_a}\right)}{T}$$

EUR = Estimated ultimate recovery (Mcf). Calculated by decline curve analysis.

A = Drainage area (acres).

h = Net thickness (feet). Calculated for each well by log analysis

ϕ = Porosity (fraction). Calculated for each well by log analysis.

S_w = Water saturation. Use field average 0.385.

P_i = Initial reservoir pressure = 1,140 psia.

Z_i = Initial gas compressibility factor = 0.85.

P_a = Abandonment pressure = 200 psia.

Z_a = Abandonment gas compressibility factor = 0.97.

T = Reservoir temperature = 102° F = 562° R.

Solve for drainage area, A, for each well:

$$A = \frac{(EUR) (562)}{(1540) (\phi h) (1 - 0.385) \left(\frac{1140}{0.85} - \frac{200}{0.97}\right)}$$

$$A = \frac{(EUR)}{(1912) (\phi h)}$$

EXAMPLE:

Hewitt IM Federal #2 located in Section 25 - 6S - 25E

EUR = 1,145,337 Mcf

ϕh = 4.02 ft.

$$A = \frac{1,145,337}{(1912) (4.02)}$$

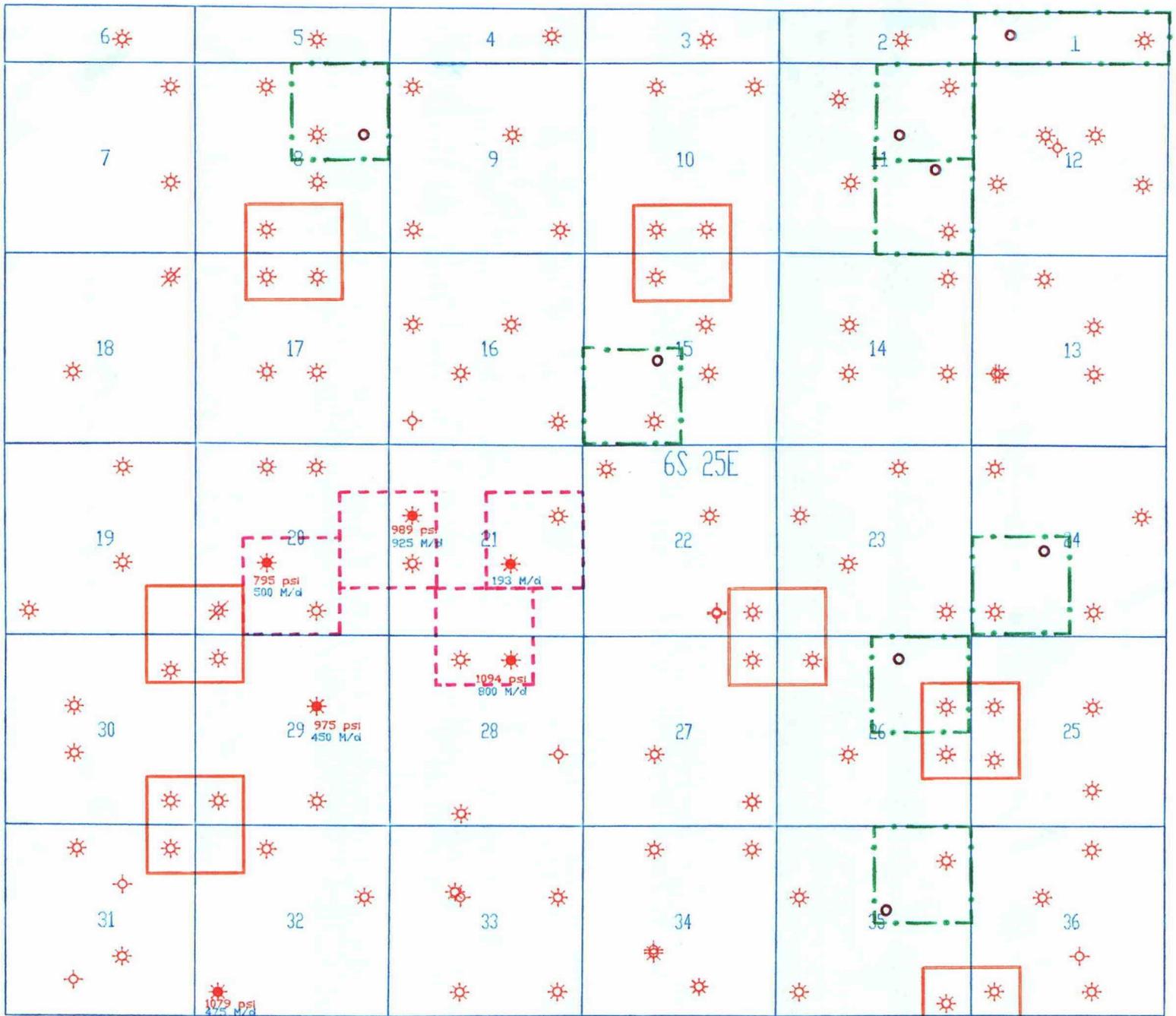
A = 149 acres

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

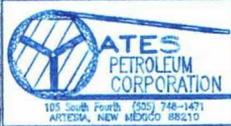
Case No. 10793 Exhibit No. 14

Submitted by: Yates Petroleum Corporation

Hearing Date: August 12, 1993



-  = MORE THAN 2 WELLS ON 160 ACRES
-  = 1992 NEW WELL SHARES 160 ACRES
-  = 160 ACRE PROPRATION UNIT CONTAINING PROPOSED DRILLWELL
-  = GAS WELL
-  = 1992 NEW WELL (Initial BHP)
(Unit prod. rate)
-  = PROPOSED DRILLWELL



**ATES
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**T6S-R25E
PECDS SLOPE
CHAVEZ CO., NEW MEXICO**

SCALE: 1"=4000'

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

Case No. 10793 Exhibit No. 15

Submitted by: Yates Petroleum Corporation

Hearing Date: August 12, 1993