MARTIN YATES, III
1912 - 1985
FRANK W. YATES
1936 - 1986

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210
TELEPHONE (505) 748-1471

S. P. YATES
CHAIRMAN OF THE BOARD
JOHN A. YATES
PRESIDENT
PEYTON YATES
EXECUTIVE VICE PRESIDENT
RANDY G. PATTERSON
SECRETARY
DENNIS G. KINSEY
TREASURER

December 7, 1995

Tim Gum
New Mexico Energy, Minerals and Natural Resources Dep't.
Oil Conservation Division
P.O. Drawer DD
Artesia, NM 88210

Re: Order DHC-1143
Proposed Downhole Commingling Allocation
Zinnia Federal Unit Well No. 1
Unit E, Section 27, T20S, R29E
Eddy County, New Mexico

Dear Mr. Gum,

Yates Petroleum has recently implemented the downhole commingling of the Strawn (10965-10988' MD) and Wolfcamp (9902-9909', 10188-10216' MD) formations per Administrative Order DHC-1143. The commingled production rate is currently 37 bopd/104 bwpd/139 mcfd. The Strawn production rate before commingling was 5 bopd/4 bwpd/34 mcfd, therefore it is reasonable to say the Wolfcamp is currently contributing 32 bopd/100 bwpd/105 mcfd.

Yates Petroleum proposes allocating production between the Strawn and Wolfcamp as shown below.

Strawn: Best engineering estimate is that Strawn production will exhibit an exponential decline rate of 25%/year.

Oil: Q = 5 bopd, Qel = 1 bopd, d = 25%/yr

$$N = \frac{365\,(1-5)}{\ln\,(1-.25)} = 5075 \text{ BO}$$

Gas: Q = 34 mcfd, Qel = 10 mcfd, d = 25%/yr

$$N = \frac{365\,(10-34)}{\ln\,(1-.25)} = 30{,}450 \text{ MCF}$$

Wolfcamp: Best engineering estimate is that Wolfcamp production will exhibit an exponential decline rate of 90%/year.

Oil: Q = 32 bopd, Qel = 1 bopd, d = 90%

$$N = \frac{365\,(1-32)}{\ln(1-.9)} = 4914 \text{ BO}$$

Gas: Q = 105 mcfd, Qel = 10 mcfd, d = 90%

$$N = \frac{365\,(10-105)}{\ln(1-.9)} = 15{,}059 \text{ MCF}$$

Allocation: Strawn Oil $= \frac{5075}{5075 + 4914} = 50.81\%$, say 51%

Strawn Gas $= \frac{30{,}450}{30{,}450 + 15{,}059} = 66.91\%$, say 67%

Wolfcamp Oil = 49%
Wolfcamp Gas = 33%

If you have any questions, please call me at 505-748-4182.

Sincerely,

Brian Collins
Engineer

KBC/sj

xc: NMOCD Santa Fe
BLM Carlsbad