George QJ #10 -- Drainage Area

1. Original Oil in Place (stock-tank barrels) is given by the equation

   OOIP = 7758*A*h* phi*So/Boi

   where h*phi*So is the hydrocarbon pore volume.

2. The log calculations for hydrocarbon pore volume yield **h*phi*So = 0.769**.

3. **Boi = 1.28** from the Standing Correlations where the parameters are as follows:

Solution GOR	=	600
Temperature	=	110 degrees F
Gas Gravity	=	0.7
Tank Oil Gravity	=	42 degrees API

4. Ultimate Primary Recovery (Np) = Recovery Factor*OOIP

   where Recovery Factor **(Rf)** = **0.30**

   Estimated for gas-cap reservoir

5. Then, Np = Rf*7758*A*h*phi*So/Boi

   and, by rearranging, A = Np*Boi/(Rf*7758*h*phi*So) in acres

   A = 419000*1.28/(0.30*7758*0.769) in acres

   A = 300 acres is the Drainage Area

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Case No. 12751 Exhibit No. 15
Submitted by:
YATES PETROLEUM CORPORATION
Hearing Date: March 27, 2003

George QJ #9 -- Drainage Area

1. Original Oil in Place (stock-tank barrels) is given by the equation

   OOIP = 7758*A*h* phi*So/Boi

   where h*phi*So is the hydrocarbon pore volume.

2. The log calculations for hydrocarbon pore volume yield **h*phi*So = 1.047**.

3. **Boi = 1.28** from the Standing Correlations where the parameters are as follows:

Solution GOR	=	600
Temperature	=	110 degrees F
Gas Gravity	=	0.7
Tank Oil Gravity	=	42 degrees API

4. Ultimate Primary Recovery (Np) = Recovery Factor*OOIP

   where Recovery Factor **(Rf)** = **0.30**

   Estimated for gas-cap reservoir.

5. Then, Np = Rf*7758*A*h*phi*So/Boi

   and, by rearranging, A = Np*Boi/(Rf*7758*h*phi*So) in acres

   A = 240000*1.28/(0.30*7758*1.047) in acres

   A = 126 acres is the Drainage Area

Yates Petroleum Corporation
Case 12751
Exhibit ________

George QJ #2Y -- Drainage Area

1. Original Gas in Place (Scf) is given by the equation

   OGIP = 43560*A*h* phi*Sg*Bg

   where h*phi*Sg is the hydrocarbon pore volume.

2. The log calculations for hydrocarbon pore volume yield **h*phi*Sg = 0.773**.

3. **Bg = 35.35*p/(zT)** in Scf per cubic foot where the parameters are as follows:

Pressure	=	2312 psi		
Temperature	=	110 degrees F	=	570 degrees R
Gas Gravity	=	0.65		
Tc	=	390 degrees R		
Pc	=	667 psi		

	Then	Tr	=	(460+110)/390	=	1.46
		Pr	=	2312/667	=	3.47
	And	z	=	0.74		
So		Bg	=	35.35*2312/(0.74*570)	=	**194 Scf/cubic foot**

4. Ultimate Recovery (Gp) = Recovery Factor*OGIP

   where Recovery Factor **(Rf)** = **0.80**

5. Then, Gp = Rf*43560*A*h*phi*Sg*Bg

   and, by rearranging, A = Gp/(Rf*43560*h*phi*So*Bg) in acres

   A = 0.722*10^9/(0.8*43560*0.773*194) in acres

   A = 138 acres is the Drainage Area

Yates Petroleum Corporation
Case 12751
Exhibit ________

Powers OL #6 -- Drainage Area

1. Original Gas in Place (Scf) is given by the equation

   OGIP = 43560*A*h* phi*Sg*Bg

   where h*phi*Sg is the hydrocarbon pore volume.

2. The log calculations for hydrocarbon pore volume yield **h*phi*Sg = 0.344**.

3. **Bg = 35.35*p/(zT)** in Scf per cubic foot where the parameters are as follows:

Pressure	=	2312 psi		
Temperature	=	110 degrees F	=	570 degrees R
Gas Gravity	=	0.65		
Tc	=	390 degrees R		
Pc	=	667 psi		

Then	Tr	=	(460+110)/390	=	1.46
	Pr	=	2312/667	=	3.47
And	z	=	0.74		
So	Bg	=	35.35*2312/(0.74*570)	=	**194 Scf/cubic foot**

4. Ultimate Recovery (Gp) = Recovery Factor*OGIP

   where Recovery Factor **(Rf)** = **0.80**

5. Then, Gp = Rf*43560*A*h*phi*Sg*Bg

   and, by rearranging, A = Gp/(Rf*43560*h*phi*So*Bg) in acres

   A = 0.195*10^9/(0.8*43560*0.344*194) in acres

   A = 84 acres is the Drainage Area

Yates Petroleum Corporation
Case 12751
Exhibit ________