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)** = **0.25**

   from 1957 paper entitled "Estimation of Ultimate Recovery from Solution Gas-Drive Reservoirs" by Wahl, Mullins and Elfrink of Magnolia Petroleum.

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

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

   A = 223615*1.28/(0.25*7758*0.769) in acres

   A = 192 acres is the Drainage Area

Yates Petroleum Corporation
May 11, 2006

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Case No. 13706 Exhibit No. 10
Submitted by:
YATES PETROLEUM CORPORATION
Hearing Date: May 11, 2006

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)** = **0.25**

   from 1957 paper entitled "Estimation of Ultimate Recovery from Solution Gas-Drive Reservoirs" by Wahl, Mullins and Elfrink of Magnolia Petroleum.

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

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

   A = 132384*1.28/(0.25*7758*1.047) in acres

   A = 83 acres is the Drainage Area

Yates Petroleum Corporation
May 11, 2006

George QJ #2Y -- 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 = 0.773**.

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)** = **0.25**

   from 1957 paper entitled "Estimation of Ultimate Recovery from Solution Gas-Drive Reservoirs" by Wahl, Mullins and Elfrink of Magnolia Petroleum.

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

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

   A = 33223*1.28/(0.25*7758*0.773) in acres

   A = 28 acres is the Drainage Area (Oil Well)

Yates Petroleum Corporation
May 11, 2006

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		=	380 degrees R		
Pc		=	670 psi		
Then	Tr	=	(460+110)/380	=	1.50
	Pr	=	2312/670	=	3.45
And	z	=	0.77		
So	Bg	=	35.35*2312/(0.77*570)	=	**186 Scf/cubic foot**

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

   where Recovery Factor **(Rf)** = **0.80** for medium-porosity sands

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

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

   A = 0.313*10^9/(0.8*43560*0.773*186) in acres

   A = 62 acres is the Drainage Area (Gas Well)

Yates Petroleum Corporation
May 11, 2006

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		=	380 degrees R		
Pc		=	670 psi		
Then	Tr	=	(460+110)/380	=	1.50
	Pr	=	2312/670	=	3.45
And	z	=	0.77		
So	Bg	=	35.35*2312/(0.77*570)	=	**186 Scf/cubic foot**

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

   where Recovery Factor **(Rf)** = **0.80** for medium-porosity sands

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

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

   A = 0.110*10^9/(0.8*43560*0.344*186) in acres

   A = 49 acres is the Drainage Area (Gas Well)

Yates Petroleum Corporation
May 11, 2006