

## Material Balance Calculations

Sapient Energy Corp

Barber # 12

### Assumptions:

Initial BHP = 2597 psia

Initial Z factor = 0.7837

Initial P/Z = 3314 psia

10-24-01 BHP = 1231 psia @ 6262'

10-24-01 BHP = 1235 psia @ 6400'

10-24-01 Z factor = 0.8362

10-24-01 BHP/Z = 1477 psia

Cum Production as of 10-24-01 = 808 MMCF

Original Gas In Place = 815 MCF/acre-ft

Original Recoverable Gas In Place = 741 MCF/acre-ft

Thickness = 30'

Abandonment BHP/Z = 300 psia

### Calculations:

Slope =  $808 \text{ MMCF} / (3314 \text{ psi} - 1477 \text{ psi}) = 0.440 \text{ MMCF/psi}$

Est Ultimate Recovery =  $(3314 \text{ psi} - 300 \text{ psi}) \times 0.440 \text{ MMCF/psi}$   
= 1326 MMCF

Est Original Gas In Place =  $3314 \text{ psi} \times 0.440 \text{ MMCF/psi}$   
= 1458 MMCF that this well is draining

**Note: This well is only draining 66% of the 80 acres in the E/2 of NE/4**

**i.e.  $1458 \text{ MMCF} / 2206 \text{ MMCF (planimetered volume)} = 0.66$**

**Drainage Area =  $0.66 \times 80 \text{ acres} = 53 \text{ Acres}$**

Drainage Area Assuming a Constant Thickness =

$1458 \text{ MMCF} / 30 \text{ ft} / 0.815 \text{ MMCF/acre-ft}$

= 60 Acres