

Closed Loop Drilling Costs

- Rig Costs
 - \$4,500 / day MV/DK Equipment
 - \$3,000 / day FC/PC Equipment
 - \$1,200 / day Personnel
 - \$300 / day Frac Tank Storage
 - \$13,500 Misc. (extra loads, mud, rig mods)
- Hauling Costs
 - \$16 / yd³ Disposal
 - \$10 / yd³ Loading Machinery
 - \$80 / Truck-hr
 - 10 yd³ / Truckload
 - 24 miles / Truck-hr
- MV/DK Deep Wells
 - 12 rig-days & 600 yd³
 - Average: 27 miles **Costs: \$115M**
- FC/PC Shallow Wells
 - 4 rig-days & 400 yd³
 - Average: 22 miles **Costs: \$49.5M**

d = straight-line miles
Round trip distance=
2*d*1.3

5 hr cycle for 120 miles

Calculations

- MV/DK Deep Wells

- Rig Cost = \$85.5M

- \$6M * 12 days + \$13.5M

- Hauling = \$29.5M

- 600yd³ (\$16 + \$10 + \$80/hr * 27miles
*2*1.3/10 yd³per truck/24mile per hr)

- Avg. Additional Costs = \$115M

- FC/PC Shallow Wells

- Rig Cost = \$31.5M

- \$4.5M * 4 days + \$13.5M

- Hauling = \$18.0M

- 400yd³ (\$16 + \$10 + \$80/hr * 22miles
*2*1.3/10 yd³per truck/24mile per hr)

- Avg. Additional Costs = \$49.5M

Impact on Capital Inventory

- Reduced 543 wells & 263 BCF
 - Deep: 509 wells & 243 BCF
 - Shallow: 34 wells & 20 BCF
- Caveats
 - Minimum 1 year moratorium
 - If immediate implementation
 - 50%-100% increase costs
 - Shut down drilling program until closed-loop rigs available
 - Availability of additional trucks
 - Future dumping site
 - County Landfill only authorized 1 yr
 - Larger drill pads
 - Continuous Hauling
 - 24 / 7? Land Fill hours? Weather?
 - Additional Water Disposal?