

# Oil Well Lease Problem

- Opportunity to lease an oil well for three pumping seasons.
- Initial Reserves of 100,000 barrels
- In any year, you can:
  - Not pump (\$0 cost, recovers 0% of whatever is left in reservoir)
  - Pump normally (\$130,000 cost, recovers 20% of whatever is left in reservoir)
  - Pump with enhanced water pressure (\$300,000 cost, recovers 36% of whatever is left in reservoir)
- Price of oil is known to be \$20/barrel initially, but in any given year is equally likely to be \$20/barrel or \$30/barrel.
- What is a fair price for the lease?

# Additional Assumptions

- Money has no time value.
- Oil may not be stored and must be sold on the market immediately after being pumped.
- The price of oil is known at the time that you begin pumping in any year. Note you still won't know what price oil will be *next* year.