Pumping Plant Performance Testing

New pump – no wear

Pump with worn seal.
Some water leaks through seal and is re-pumped

Impellers adjusted so they are as low as possible within the bowl (when pumping).
**Measurements needed for a short-term test**

- Pumping water level
- System pressure
- Flow rate (GPM)
- Energy consumption

**Performance**

- Performance is the useful work performed by a pumping plant divided by the energy consumed (whp-hours/energy)

**Performance Rating**

- The performance rating is calculated by dividing the performance by the Nebraska Performance Criteria (NPC).
- The performance rating is expressed as % of the NPC.

**Potential Savings**

- Potential savings can be calculated from the rate of energy consumption and the computed performance rating
- \((1\text{-rating}) \times \text{energy consumed}\)
Feasibility of repair or replacement

- Potential annual energy savings \( \times \) price of energy = potential $ savings.
- Potential $ savings/ capital recovery factor = up front repair expense which can be paid off with energy savings.