

Case Study: Texas

Improving Well Economics for the Next Century of Production

Case Study Details

An operator in North Texas is utilizing new technology to improve the profitability of their shallow oil wells, thus extending the life of a field that initially entered production almost 100 years ago.

The operator was experiencing a large amount of non-productive time due to frequent well interventions. On average, they pulled rod pumps, rods and/or tubing every 10 months. Downtime, often coupled with weeks waiting for a rig, was challenging the economics of the field. Therefore, the operator began exploring methods of reducing cycle time between pump failures while maintaining production and reducing lease operating expenses (LOE).

The operator investigated the use of Air Lift Technology (ALT) to accomplish their goals. The pneumatic pump system was first deployed in North Oklahoma in wells sharing many of the same characteristics as the subject field. Encouraged by the system's performance in Oklahoma, they decided to conduct a field trial of the technology. The trial was initially conducted on seven wells. A second set of seven wells



Challenges

- **Frequent well intervention due to rod pump and/or tubing failures**
- **High costs for maintaining electrical supply to entire field**

Results

- **Increased production days per year due to reduced downtime**
- **Lower lease operating expenses by eliminating rotating surface equipment**
- **Centralized compressor stations substantially decreased electrical needs and grid maintenance.**

were installed six months later in phase two. Each phase involved the removal of rods, rod pumps, tubing, pump jacks and stripping heads. The ALT system was then deployed on a 1/4" grade 316 stainless steel cable with a 6,000# tensile rating.

The system's pneumatic pumps are manufactured with a combination of grade 316 stainless steel and thermoplastics. A closed loop is created for the injected and exhausted compressed air or natural gas using two high density polyethylene tubing strings (Poly Pipe). This closed loop isolates the compressed air or natural gas from the wellbore annulus. A third Poly Pipe string is utilized to bring the produced fluid to the surface. These materials were chosen to create a system that is highly resistant to corrosion.

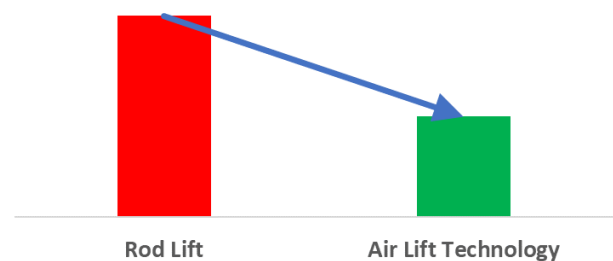
The first seven wells saw no reduction in production, with a portion of them experiencing a slight increase. The second set of seven installations were driven based on assets that were off pump and needing well interventions. After installing the fourteen systems, the operator started seeing a lowered kilowatt usage on their utility invoices. A third set of wells were completed with the new technology resulting in the conversion of one side of the field to the ALT technology. This allowed the operator to see a side-by-side comparison in run times, power usage and production stability. Subsequently, a fire event from downed electrical lines prompted a complete conversion of all producing wells to ALT. This total conversion led to significant kilowatt hour savings and lower grid maintenance costs as two centralized compressors were used to power sixty wells, further enhancing profitability.

As of this writing, the first seven wells have not experienced any failures since they were installed in April 2019, a notable improvement over the rod pump

performance record. Additionally, kilowatt hour usage has been reduced by 50%.

For more information about Air Lift Technology and how it is benefitting operators with shallow/marginal production please visit: airlifttechnology.com

Field Kilowatt Hour Requirements



Production Days Between Wellbore Intervention

