Weatherford®

REAL RESULTS

RapidFlo™ Plunger Lift System Enables Operator to Stabilize, Improve Production on Low BHP Gas Lift Wells

Objectives

- Provide a viable solution for gas lift wells that had begun to "slug flow" due to declining bottomhole pressure (BHP) , limited/erratic rate of entry, and restrictions in the tubing caused by the accumulation of paraffin.

Results

- Weatherford's solution consisted of two components: install a plunger-lift system and simultaneously convert the gas-lift system from continuous flow to intermittent flow.
- The packers were set in the 4 1/2-in., 11.6-lb liner curve anywhere from 37 to 60 degrees. The operator used slickline to install the plunger-lift system by deploying a collar-stop and bottomhole bumper-spring assembly above the bottom gas-lift valve. Paraffin was cut and removed prior to installation.
- The *RapidFlo* plunger was dropped into the well and the lubricator and other surface equipment was installed. Running over 40 times per day, the plunger eliminated the need to cut paraffin.
- Fuel gas was run to the compressor from the make-up gas supply to provide fuel during the "off" cycle, and the well was placed in service.
- Oil production increased from an average of 5 to 30 B/D (0.79 to 4.7 m^3/d) per well. Gas production increased from an average of 100 MCFD to 300 MCFD per well. The injection rate was lowered from 450 MCFD to 350 MCFD.
- Injection pressure was lowered from over 600 to 480 psi (4.13 to 3.30 MPa), significantly lowering the backpressure on the formation.

Value to Client

- Weatherford's *RapidFlo* plunger-lift system with the existing gas lift design increased the efficiency of the system, stabilizing and increasing overall production.
- By avoiding paraffin cutting procedures and depending on the well, the operator saved between $3,000 and $12,000 per month.
- The well modifications were implemented in a short period of time with little risk, reducing the overall operating costs.
- The same solution can be used throughout a significant portion of the remaining economic life of the wells.

The unique bypass valve in Weatherford's *RapidFlo* plunger enabled the operator to maximize flow time and avoid paraffin cutting.

Location
Western Oklahoma
Texas Panhandle

Formation
Cleveland and Tonkawa

Well Type
Onshore, oil, horizontal

Total Vertical Depth
8,500 to 10,000 ft
(2590 to 3048 m)

Tubing
2 3/8-in, 4.7 lb/ft (7.0 kg/m)

Casing
4 1/2-in., 11.6 lb/ft (17.2 kg/m)

Products/Services
- C Series gas lift valves
- PR-3 production packer
- Collar-stop with bottomhole bumper spring
- *RapidFlo* plunger
- Lubricator
- Plunger arrival switch
- F-15 controller
- Control (motor) valve
- Drip pot and regulator assembly

Weatherford
J. E. Cope
Artificial Lift Systems Business
Development Account Manager
jewel.cope@weatherford.com

