

Case study: Texas, United States

ESP system with MaxRate software increased production 200%

An operator had an unconventional well in the Austin Chalk Formation in Texas that produced an average of 232 bopd on natural flow. However, after just 9 days, the operator was unable to draw the well down below 2,100 psi with natural flow. The operator approached Baker Hughes for an electrical submersible pumping (ESP) system solution to reduce pump intake pressure (PIP) and increase production.

Baker Hughes engineers analyzed the well conditions and suggested a system with **FLEXPump™ technology**. The 400FLEXPump10 pump, as part of the ESP system, provided a wider operating range capable of handling the varying flow rates and moderate levels of gas.

Baker Hughes installed an ESP system which included: the FLEXPump series pump, tandem gas separator, sensor, and MSP motor.

After one week of operation, the ESP was unable to handle the cyclic slugging of the well and shut down every 2.5 hours.

Baker Hughes engineers analyzed the well and decided to install **MaxRate™ gas mitigation software** as part of the **Electrospeed Advantage™ Variable Speed Drive (VSD)**.

The ESP system provided operational flexibility in the varying well conditions of this operator's Texas well. The Electrospeed Advantage VSD handled variable flow rates and the proprietary MaxRate software was a key technology that assisted with ESP system ride-through during gas slugs and kept the system continuously operational.

By eliminating gas locking conditions, this solution reduced downtime and improved the reliability of the ESP system. Production increased 200% from 296 bopd to 889 bopd. The 400FLEXPump10 pump and the VSD with MaxRate software, in concert with the tandem gas separator, handled more free gas for improved fluid level drawdown.

Challenges

- After 9 days of natural flow, operator was unable to draw well down past 2,100 psi PIP
- High bottomhole temperature with moderate levels of gas
- Excessive cycling every 2.5 hours
- Average production was 296 bopd and 496 bwpd with 318 Mcf/d of gas

Results

- Reduced pump intake pressure (PIP) from 2,100 psi to 700 psi
- Increased production 200% from 296 to 889 bopd using ESP system with Electrospeed Advantage VSD and MaxRate software
- Adjusted MaxRate software to specific well conditions, achieved average production of 889 bopd, 228 bwpd, and 552 Mcf/d



The Electrospeed Advantage Variable Speed Drive.