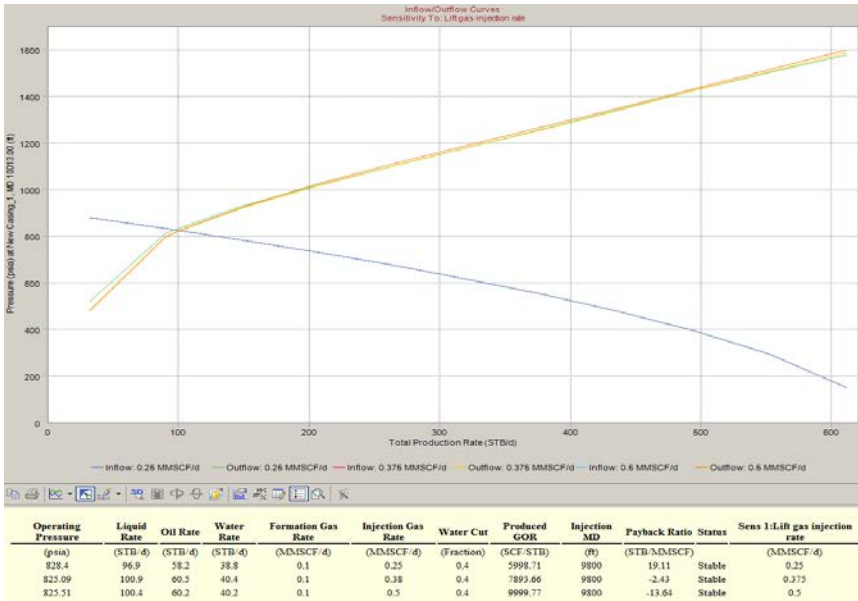


# Xtra-Lift Gas-Lift System Produces Comparably to ESP, Saves More Than \$100,000 in Intervention Costs



WellFlo design and analysis software provided models of the wells with various sensitivities on tubing sizes and configurations, which enabled the client to select the optimum design for each well.

## Objectives

- Identify an economical artificial-lift method to produce a sandy well to depletion. The well was being produced with electric submersible pump (ESP) systems that were experiencing excessive failures in the sandy conditions. Production from the well operating with the ESP system was 200 to 300 bbl/d.

## Our Approach

- To determine whether gas lift would be the best fit for the sandy well, the Weatherford team performed an analysis using WellFlo\* and DynaLift™ software programs. The WellFlo program modeled scenarios with various sensitivities of tubing sizes and configurations. The critical unloading plots, inflow/outflow curves, and operating rates versus lift-gas injection rate plots were supplied for all modeled scenarios. After considering the WellFlo analysis results, the client selected gas lift as the optimum solution for the well. Next the Weatherford team used DynaLift dynamic gas-lift simulation software to model the operating scenario for the chosen solution and provide precise, real-time unloading.

### LOCATION

North Dakota

### WELL TYPE

Onshore/natural drift/shale

### FORMATION

Bakken

### CASING SIZE AND TYPE

7-in. 26# HCP-110 and 32# p-110

### LINER SIZE AND ANGLE

4 1/2-in. liner at 10 to 20° to the toe

### TEMPERATURE

190 to 200°F (88 to 93°C)

### PRESSURE

970 psi SBHP/750 psi FBHP

### DEPTH

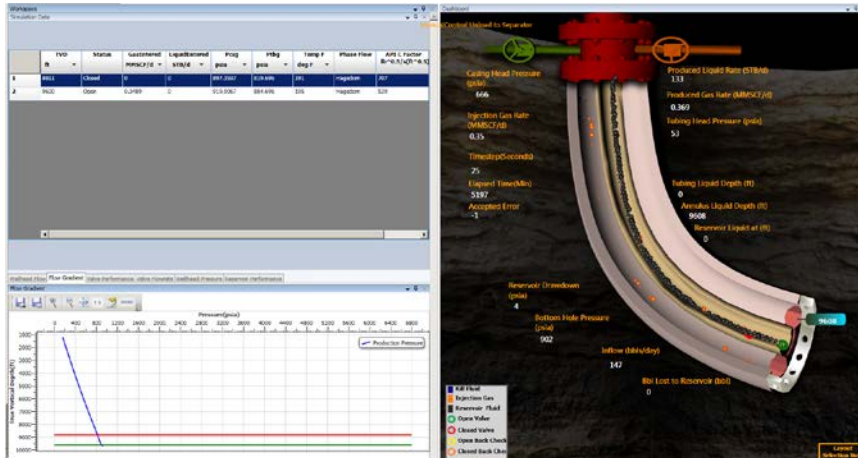
Completed to 60° at approximately 9,000 ft md; well depth 19,500 ft md

### PRODUCTS/SERVICES

- WellFlo design and analysis software
- DynaLift dynamic gas-lift simulation software
- Xtra-Lift gas-lift system
- Packer completion system



## Xtra-Lift Gas-Lift System Produces Comparably to ESP, Saves More Than \$100,000 in Intervention Costs



*DynaLift dynamic gas-lift simulation software provided real-time unloading and operating scenarios.*

- Weatherford installed an Xtra-Lift gas-lift system in the well. The system used a Weatherford AS-1X production packer fitted with the Weatherford gas injection X-Over kit that landed inside the 4 1/2-in. production liner. Tubing below the packer was to be run to 60°.

### Value to Client

- The nodal analysis results provided by WellFlo software and the simulation provided by DynaLift software enabled the client to confidently select a more economical artificial-lift method for the sandy well.
- The Weatherford Xtra-Lift system enabled the client to maintain production in the well at 200 to 300 bbl/d under sandy conditions. The well produced exactly as predicted by the Weatherford WellFlo analysis and DynaLift simulation model.
- With the installation of the Xtra-Lift system, the client eliminated the need to spend more than US \$100,000 in intervention and replacement costs for additional failures of the prior ESP system.
- Because of the success in this well, the client completed three additional wells using the same Weatherford system.



\*WellFlo is a registered trademark of Weatherford in Colombia and the United Kingdom.