

Case study: North Dakota, North America

MaxRate software increased production 20%, eliminated gas-related shutdowns

A leading producer in the Bakken formation in North Dakota was losing production due to gas-related shutdowns in a 1,000 scf/barrel gas/liquid ratio (GLR) well. Due to variations in the horizontal wellbore, extreme gas slugging was seen in the electrical submersible pumping (ESP) system multiple times per day. The gas slugs were causing the ESP to overheat and shut down, exposing the system to high temperatures. These gas slugs and elevated temperatures increased the risk of failure and reduced total production.

Baker Hughes solution

The Artificial Lift engineering team from Baker Hughes identified the well as a candidate for the new **MaxRate™**

gas handling software, exclusively for use with **Electrospeed Advantage™ Variable Speed Drives (VSD)**. By using ProductionLink™ ESP monitoring services, the new software was further enhanced. The intake pressure was lowered and ESP-related shutdowns were avoided. Over the next two months of production, only four shutdowns were observed, all for regular maintenance to the operator's surface equipment.

Production increased from 204 barrels of oil per day prior to the installation of the MaxRate software to an average of 245 barrels of oil per day, a 20% increase. Revenue increased \$123,000 USD* per month.

Challenges

- North Dakota operator was losing production due to gas-related shutdowns
- Gas slugging caused motor temperatures to spike
- Operator wanted to increase up time

Results

- Detected gas slugging conditions using the MaxRate software, allowing the VSD to automatically adjust the ESP system to disperse the gas accumulation
- Reduced shutdowns from 15 per month to 4 using gas mitigation software
- Increased production by an average of 40 BOPD over a 30-day period
- Increased monthly revenue \$123,000 USD
- Achieved zero motor temperature-related shutdowns over the following months

Average daily oil production



