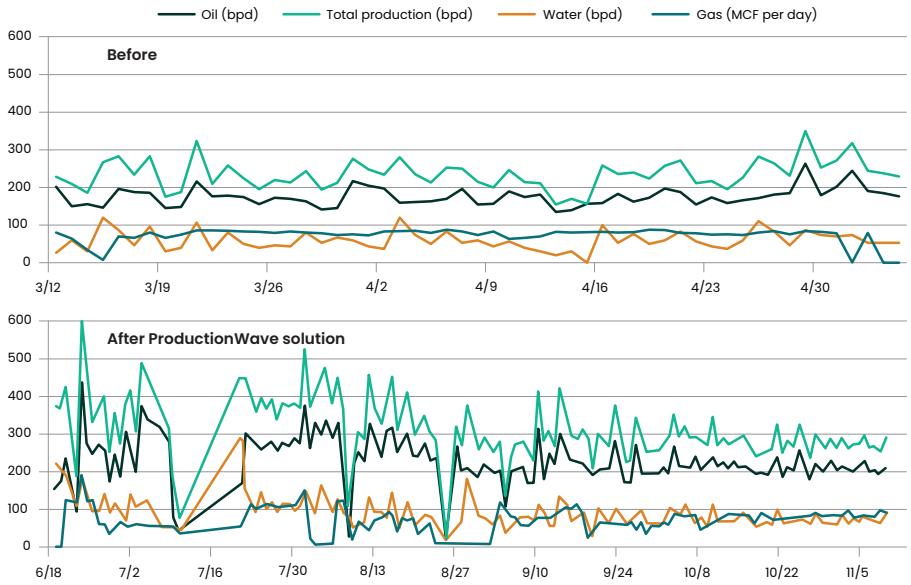
**Case study:** North Dakota

# ProductionWave solution increased monthly revenue $93,000* USD in unconventional oil well




An operator in North Dakota's Bakken unconventional oil play was looking for electrical submersible pumping (ESP) technology capable of generating higher draw down and increasing production while being able to handle high gas/oil ratios (GOR) and gas interference at low intake pressures. This operator approached Baker Hughes for a solution. The operator requested that Baker Hughes design an ESP system capable of operating in a low volume, high GOR downhole environment with an approximately 10,000 ft pump setting depth (PSD).

Baker Hughes had worked with similar wells in the Bakken region and suggested the **ProductionWave™ solution**. Experienced field service professionals installed the ProductionWave system. This solution included a **FLEXPump™ series pump**, **MVP™ multiphase gas-handling pump, EXCLUDER2000™ sand screen, and GM™ performance series tandem gas separators**. Real-time optimization experts used **ProductionLink™ Expert service** to ensure optimal system performance. Developed specifically for high gas, low-flow applications common to the Bakken, the **400FLEXPump3.2 pump** mitigated turbulence to prevent cycling and gas locking, and balanced thrust to reduce pump wear.

As demonstrated in the graph above, once the ProductionWave solution was installed, production immediately increased from 179 to 210 BOPD. The production optimization analyst noted the system was producing higher flow rates with a 14% decrease in power consumption. Monthly revenue increased $93,000 USD. The operator was pleased with the results and ordered additional systems for this Bakken region.

## Challenges

- Operator in the Bakken shale play had a horizontal well producing with a high level of gas interference in the ESP system
- Produced approximately 179 BOPD with average producing GOR of 448
- Oil production was inhibited by gas content in the fluid and low-end flow rate limitations of the higher volume ESP previously installed

## Results

- Operator increased oil production from 179 to 210 BOPD
- Reduced power consumption by 14%

*Calculated based on $100 USD per barrel of oil.