

EXTEND LIFE OF ESP INSTALLATIONS THROUGH PROPER GAS REMEDIATION USING IMPROVED BHA

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ABSTRACT

Unconventional wells are highly dynamic, have high gas-to-liquid ratio (GLR), and can have steep decline rates. This makes it imperative for operators to pump large volumes as quickly and efficiently as possible. However, the biggest obstacle in achieving drawdown is pumping successfully in gas interference scenarios.

Gas interference causes shutdowns and failures when using ESPs, as well as unplanned downtime when using rod pumps. This means lost production, costly repairs, increased operating expenses (OPEX), and lost revenue.

ESPs by nature are designed to pump only liquids. Gas entering the ESP not only decreases volumetric efficiencies, but also causes high temperature issues and erratic run behavior. This decreases production and degrades the mechanical integrity of the ESP, leading to higher maintenance costs and ESP failure. Since ESP failures are one of the major expenses incurred by the operator. Avoiding these failures and excessive OPEX can be achieved through proper gas separation.

Operating conditions can be significantly improved by utilizing the innovative technology of the ESP Gas ByPass when paired with proper ESP design and operational practices. The ESP Gas ByPass utilizes a packer to isolate all flow before reaching the pump intake and creates an isolation chamber below the ESP. Pressure is then created so that as fluid moves upward, gas is released naturally. The primary focus of the tool is to utilize the casing to create a natural downhole gas separator, which allows trapped gas to be discharged well above the pump intake of the ESP.

In this presentation, updated results showing extended pump intake drawdown and stabilized motor temperature are presented.