

Operator Switches to Summit ESP[®] Pump and Thrust Chamber for Higher Reliability

RETROFITTED HORIZONTAL PUMPING EQUIPMENT RESOLVES GAS PLANT START-UP ISSUES

POWDER RIVER BASIN, WYOMING

CHALLENGE

- » Improve pump efficiency and reliability
- » Minimize downtime due to intermittent starts/stops
- » Maximize gas production levels

SOLUTION

Installed the following retrofitted equipment:

- » Summit ESP pump
- » Summit ESP thrust chamber (TC)
- » Summit ESP intake and TC bracket

RESULT

- » Converted existing pumping systems to Summit ESP components
- » Provided longer, more consistent run time with higher productivity
- » Reduced maintenance costs
- » Won over the operator for future pump solutions

OVERVIEW

An operator of a compressor station in the Powder River Basin of Wyoming was having difficulty starting up their pumps, which called for 1,000 psi inlet pressure and low horsepower draw. To get the pumps to run correctly, the operator adapted the standard operating procedures (SOPs), specifying a pipe wrench be used for achieving enough torque. This scenario presented a safety concern, in addition to operational and programming headaches that ensued. Operationally, the plant was dependent on running the pumps uninterrupted (24/7) to maintain gas production levels. From a programming standpoint, the operator's automation team revised start/stop sequences to avoid using a pipe wrench as a mode of torque. Even so, they continued to experience inconsistent pumping reliability.



Retrofit system with Summit ESP thrust chamber and pump.

CHALLENGE

The operator initially worked with their original pump supplier, but after several months nothing alleviated the problem. Due to a reputation for Gold Standard service, Halliburton Summit ESP was brought in to further investigate. Upon taking a closer look at the installation, the Summit team found there was an overabundance of shaft deflection when the suction line was pressured up. It moved so much that it shifted the tilt pad bearings in the thrust chamber, explaining why the pipe wrench was needed to start up. In secession, there was also higher than normal motor amp draw, causing shaft "sticking."

SOLUTION

The Summit team made recommendations to upgrade the current systems; for example, going from a 125 HP motor to a 75 HP motor (better suited to the injection pressure), using different ball bearings to mitigate bearing tolerance issues, etc. The customer agreed to transition to a Summit designed thrust chamber and pump that could do the job, and could even be retrofitted. Pre-existing footprint dimensions were taken into consideration and replacement pumps were dropped in without disrupting suction/discharge piping. During this process, the ancillary oil coolers were disconnected, as Summit thrust chambers do not require such equipment for low horsepower systems; thus, eliminating maintenance and wear associated with that component.

RESULT

The retrofit was accomplished in a timely, cost-effective manner, in keeping with a track record for outstanding customer service. This project demonstrated the superiority of Summit's thrust chamber design in a high-pressure inlet application. It was successful in solving the interrupted start/stop sequence—no longer did the operator have to use a pipe wrench as part of its SOP. Overall, this solution delivered a safer start-up procedure, smooth operation with fewer starts and stops, and increased productivity to maximize asset value.



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