Mature Field Production Increases by 5% via DecisionSpace® Production Engineering

SUCCESSFUL IMPLEMENTATION OF LOW COST ESP OPTIMIZATION STRATEGY RESULTS IN DAILY PRODUCTION INCREASE WITH A STABLE WATER CUT

ASIA PACIFIC

OVERVIEW
An onshore, waterflooded mature field in Northwest China has been in production for 25 years with more than 90 active wells. The wells are artificially lifted using either an electric submersible pump (ESP) or sucker rod pump. Due to decreasing production and increasing water cut, the operator sought a solution to mitigate these challenges. Implementing a surveillance and optimization workflow via DecisionSpace® Production Engineering resulted in a 5% production increase, accounting for a 2,200 barrel oil per day (BOPD) buildup without requiring a workover.

CHALLENGE
An operator was experiencing declining production and a rapidly rising water cut. A strategy was needed to minimize downtime and increase daily production while still maintaining the water cut, especially considering the field’s limited water-handling capacity.

SOLUTION
Find and Diagnose Well and Operational Problems Faster
An ESP surveillance workflow was implemented via DecisionSpace® Production Engineering. This included capturing critical daily production insights through production charts and graphs, such as production plots and bubble maps, which are automatically updated daily. Well performance evaluation templates quickly pinpointed problematic ESP wells, revealing when and why the problem was occurring. Production engineers then progressed directly towards design and analysis to find an appropriate solution.

RESULT
Increased daily field production by 5% with stable watercut
Achieved 2,200 BOPD buildup
Implemented solution without any additional expenditures

Quickly spot problematic wells and diagnose the cause using pump performance calculation templates.
Comprehensive Solution on Operation

Furthermore, the geological condition was also considered to make sure that any optimization effort still honored reservoir characteristics, such as the oil-water contact. This cross-domain assessment provided a comprehensive solution on the operation, which was enabled by an integrated approach combining geological evaluation, reservoir simulation and production optimization.

More Rapidly Analyze Problems and Opportunities

DecisionSpace® Production Engineering is equipped with nodal analysis and pump modeling techniques for all well and fluid types, including all major artificial lift methods. The modeling revealed an opportunity to increase production without significant water production by optimizing the mechanical configuration in select ESP wells.

RESULT

This recommendation was applied to nine wells, resulting in a substantial production increase without incurring additional expenditures. The operator realized a 5% production increase, accounting for a 2,200 BOPD buildup without a workover. DecisionSpace® Production Engineering helped maximize production through integrated surveillance and modeling.