

Middle East

DuraKleen® treatment services restore ESP performance in organic deposit-prone Middle East wells

Customized chemistry extends ESP run life and reduces operating costs

CHALLENGE

- Frequent ESP trips and failures
- High oil viscosity and organic deposition
- Emulsion formation from high water cut
- Rising OPEX and risk of potential ESP replacements

SOLUTION

- Diagnose root causes of ESP instability
- Test rheology across solvent concentrations
- Customize DuraKleen® treatment service
- Bullhead and squeeze treatment into near-wellbore formation

RESULT

- Restored stable ESP operation
- Extended ESP run life beyond historical averages
- Reduced OPEX and CAPEX
- Eliminated repeated short term treatments



Overview

An operator in the Middle East region faced persistent electrical submersible pump (ESP) failures in wells that produce high-viscosity oil between 14 and 18° API. Frequent ESP trips and short pump run life created operational uncertainty and increased costs.

Previous mitigation efforts, including conventional solvent and acid treatments, offered only temporary improvement. These treatments typically delivered one or two weeks of stable performance before the ESP tripped again. In some cases, wells required pump replacement within two months after returning to production.

To establish a long-term, cost-effective solution, the operator collaborated with Halliburton to identify the root cause of ESP instability and implement a treatment strategy capable of delivering sustained performance.

Challenge

The operator's wells were prone to organic deposition and viscosity-related flow restrictions. High water cut, between 60% and 75%, contributed to the formation of emulsions that further aggravated pump instability. Conventional acid and solvent treatments had minimal impact, which forced the operator into a cycle of repeated short term interventions. The operator faced escalating OPEX but also challenging CAPEX commitments due to ESP replacements required after just two months. Without a durable solution, several wells risked becoming economically unviable.

Halliburton and the operator collaborated on a technical diagnostic to identify the specific contributors to ESP malfunction. The assessment highlighted three primary issues: elevated oil viscosity, organic deposition within the ESP system, and emulsion formation driven by the high water cut. These combined factors reduced pump efficiency, triggered system trips, and shortened ESP life.

Solution

To address recurring failures, Halliburton recommended DuraKleen® treatment services, a water/aromatic solvent microemulsion system engineered to dissolve organic deposits, reduce viscosity, and break emulsions to support flow assurance.

DuraKleen treatment services provided long-term production value through reduced organic deposition and improved environmental and safety characteristics compared with conventional treatments.

Laboratory testing established rheological profiles across multiple solvent concentrations. Based on these results, Halliburton customized the treatment formulation to match the operator's deposit composition and viscosity profile to support effective removal of the identified flow-limiting mechanisms.

The treatment was injected via bullhead into the near-wellbore area to reach approximately 3 ft of radial coverage. A two-hour soak period followed, which allowed the system to treat the root cause of ESP instability before the wells returned to production.

Result

DuraKleen treatment services restored consistent ESP performance across all treated wells. After deployment, the first treated well operated without interruption for more than six months at the time of publication, significantly exceeding historical run life performance. Other treated wells showed similar improvements, with each well surpassing or approaching previously established ESP run life averages.

This tailored approach aimed to remove accumulated organic deposits, break emulsions, and reduce oil viscosity. The result produced more stable pump operation and extended ESP run life.

As a result, the operator eliminated the need for frequent chemical treatments and reduced the likelihood of premature ESP replacement, which lowered both OPEX and CAPEX exposure. Improved pump stability also reduced downtime and minimized production deferral, which delivered measurable operational and financial benefits.

DuraKleen® treatment restores ESP performance, extends pump run life, and reduces operating costs in high-viscosity Middle East wells

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.

H015292 06/26 © 2026 Halliburton. All Rights Reserved.