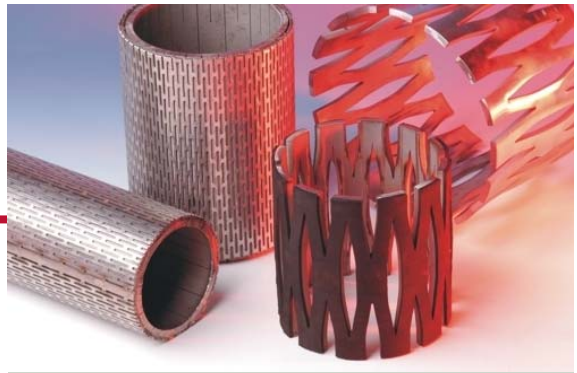
Weatherford®

REAL RESULTS

ESS® Expandable Sand Screens Achieve Neutral Skin in Deep, Hot, and Corrosive Gas Well After Three-Year Shutdown



An *ESS* system made entirely of corrosion-resistant alloy set depth and temperature records in a corrosive gas well in Saudi Arabia while achieving neutral skin.

Objectives

- Plug back and drill a horizontal openhole sidetrack from a well that had been shut-in because of two previous cased-hole frac-pack completion failures.
- Incorporate downhole sand control to mitigate solids production from the unconsolidated formation.
- Incorporate borehole support to immobilize shale streaks.
- Eliminate hot-spotting that resulted from high influx rates.
- Employ suitable screen metallurgy to combat aggressive in-situ corrosion conditions.
- Achieve zero or negative completion skin to maximize well productivity.

Results

- An *ESS* expandable sand screen completion, manufactured totally from corrosion-resistant nickel alloy, was successfully installed and expanded to prevent sand production and provide borehole support. This project was the first use of an *ESS* installation in a gas well in Saudi Arabia and set world records for the hottest and deepest installation.
- The well was subsequently shut-in for three years because the formation saver valve (FSV) failed almost immediately following commencement of well cleanup operations.
- Following workover to lock open the FSV, the well was successfully brought into production, with crushing of the filtercake during *ESS* expansion being a key factor in aiding liftoff and flowback of the filtercake after this prolonged confinement.
- A recent pressure buildup survey has confirmed that the completion skin is less than 1.

Location
Onshore, Saudi Arabia

Well Type
Open-hole gas producer

Hole Size and Angle
5 7/8-in. horizontal

Screens
4 in., 230 micron

Setting Depth
14,489 ft (4,416 m)

Hole Length
1,556 ft (474 m)

ESS Length
1,416 ft (432 m)

Well TD
16,747 ft (5,105 m)

Bottomhole Temperature
310°F (157°C)

PRODUCTS/SERVICES
- *ESS* expandable sand screens
- EXP large-bore hanger/packer
- ACE® axial compliant expansion tool

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REAL RESULTS

Value to Client

- Well production exceeds expectations, with the completion skin significantly less than what has been achieved in neighboring wells using frac-packs.
- The use of *ESS* in a remote onshore location overcame operational and logistical complexity associated with the installation of alternative frac-pack systems.

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