CASE STUDY

HALLIBURTON

Egypt

Bapetco cuts 55 rig days with tailored frac string design

CHAMP® IV retrievable packer helps accelerate job completion and cut rig time by 25%

CHALLENGE

- Tubing-conveyed perforating (TCP) added more time and cost to frac job operations than through-tubing perforating (TTP)
- Available TTP equipment did not fit the bottomhole assembly

SOLUTION

- Redesigned frac string to support TTP
- Replaced slip joint with elastic tubing
- Deployed CHAMP® IV packer to increase BHA diameter

RESULT

- Reduced perforation time by 25%
- Saved 55 rig days
- Enabled safer, more efficient operations

Overview

Uncertain formation pressures led Badr El Din Petroleum Company (BAPETCO) in Egypt to seek a safer, more efficient way to perforate target zones and reduce rig time. The operator initially used tubing-conveyed perforating (TCP) techniques to maintain control, but this method increased operational costs and duration. To improve efficiency, BAPETCO collaborated with Halliburton to implement through-tubing perforating (TTP). A tailored frac string design allowed the switch to TTP, which helped the operator cut perforating time by 25% and save 55 rig days.

Challenge

BAPETCO faced uncertain formation pressures in Egypt, which required a cautious approach to perforating. To maintain greater control and safety, the operator used tubing-conveyed perforating (TCP) equipment. While this method improved operational safety, it also increased the time and cost of the fracturing process.

To reduce rig time amid perforation operations and maintain safety standards, BAPETCO planned to switch to TTP. Although TTP produced smaller perforation hole diameters and depths, it met the minimum specifications required for the formation fracturing job. However, implementation proved difficult.

The existing bottomhole assembly (BHA) and slip joint restricted the use of TTP guns due to diameter limitations.

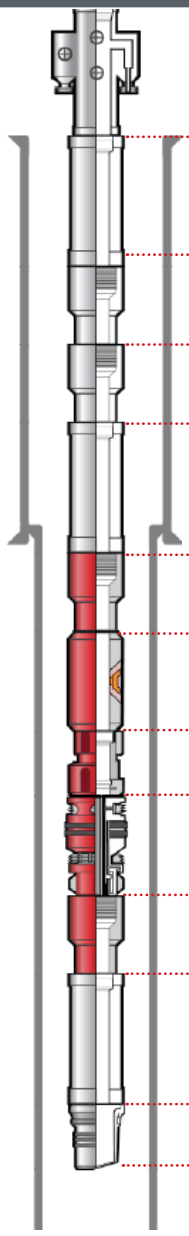
Solution

Halliburton redesigned the frac string to support TTP. The team replaced the slip joint with tubing that offered higher elasticity and deployed the CHAMP® IV packer to increase the BHA internal diameter from 2.25-in. to 2.37-in. This adjustment facilitated the use of TTP guns through the frac string without a compromise to safety or performance.

Result

BAPETCO successfully implemented TTP guns with Halliburton's tailored frac stream. The operator reduced perforation operation time by 25%, which saved approximately 55 rig days.

> "[We] acknowledge the outstanding work in developing and proposing the new 'frac string' design and collaborative efforts in managing the risks associated and ensuring that the work was carried out smoothly and, most importantly, safely"
>
> BAPETCO well intervention and completion manager



DESCRIPTION
Frac head
3rd party: Tubing, 4-½-in. PH-6 (to surface)
3rd party: 4-½-in. RN nipple
3rd party: Crossover, 4-½-in. PH-6 box x 3-½-in. EUE pin
3-½-in. EUE tubing
Crossover, 3-½-in. EUE box x 2-⅞-in. EUE pin
Ceramic disc 15 K
RTTS safety joint 7-in.
CHAMP® packer 7-in.
Crossover, 3-½-in. IFBox x 3-½-in. EUE pin
3rd party: Tubing (+/- 4 ea) subjected to change
WLIG
Depth ref.: 3,790.00 m. Distance to top of the tool: 0.00 ft. End of BHA

Frac string redesigned to include tubing with higher elasticity to mitigate usage of the slip joint.

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