ACTive Isolation Revives Well Production

Rigless shutoff decreases water cut by 50% and increases oil production by 1,000 bbl/d in Saudi Arabia

**CHALLENGE**
Intermittent oil production in a horizontal openhole well caused by increased water cut.

**SOLUTION**
Provide better control and accurate placement of high-expansion bridge plugs using ACTive® Isolation real-time downhole measurements.

**RESULTS**
- Decreased water cut by 50%
- Increased oil production by 1,000 bbl/d.
- Reduced completion time by half.
- Eliminated rig intervention costs.

**Water cut stops well production**
A new horizontal well in Saudi Arabia was producing oil with a 60% water cut, which was causing the well to stop flowing. Most of the water was coming from the toe of the completion in an openhole carbonate reservoir. The well was completed as a horizontal openhole well.

Water shut-off operations in horizontal openhole wells are complicated by lack of information about depth, bottomhole temperature, and bottomhole pressure, which makes isolation difficult. These factors affect the reliability of high-expansion bridge plug operations, cement plug formulation, and proper placement of isolation devices to shut off a water producing zone.

**Real-time data provides answers**
Saudi Aramco chose ACTive Isolation for an accurate and effective way to isolate the zone, to reduce water cut, and to regain production.

ACTive Isolation also provided a rigless solution by deploying a through-tubing inflatable packer on CT and a cement plug to isolate the water-producing zone at the toe of the horizontal open hole.

The initial run confirmed well accessibility and downhole temperature for accurate cement slurry design. On the second run, the through-tubing inflatable packer was run to the depth of the oil/water interface. After the depth was confirmed, a ball was dropped in the CT to set the packer. Real-time downhole measurements ensured the packer was properly located and set. On the third run, CT spotted cement on top of the inflatable packer.

**Coiled Tubing**

Depth correlation at the tubing shoe.
CASE STUDY: Rigless shutoff decreases water cut by 50% and increases oil production by 1,000 bbl/d in Saudi Arabia

Oil production revived
The kill fluids were displaced with nitrogen, which was confirmed at surface by monitoring downhole pressure. This rigless solution reduced completion time by half.

With the well back in production, water cut decreased by 50% and oil production increased by 1,000 bbl/d.