

# Swellpacker® Systems Provide Isolation for Multizone, Multilateral Completion

## CHALLENGES OF A COMPLEX WELLBORE SOLVED WITH CUSTOMIZED SOLUTIONS

NORWAY

### CHALLENGES

The drilling program called for the mainbore to be drilled and then sidetracked into a separate reservoir.

- » Long well path with several doglegs
- » Top completion with zonal isolation and zone control for four zones required
- » Dual pressure and temperature monitoring for all zones

### SOLUTION

Halliburton proposed using its lateral liner washdown completion system with a two-run installation procedure

### RESULTS

The entire Swellpacker® Cable system installation took only 45 minutes per packer, compared to 12 hours per packer for standard hydraulic-set packers.

- » Zero HSE incidents

### OVERVIEW

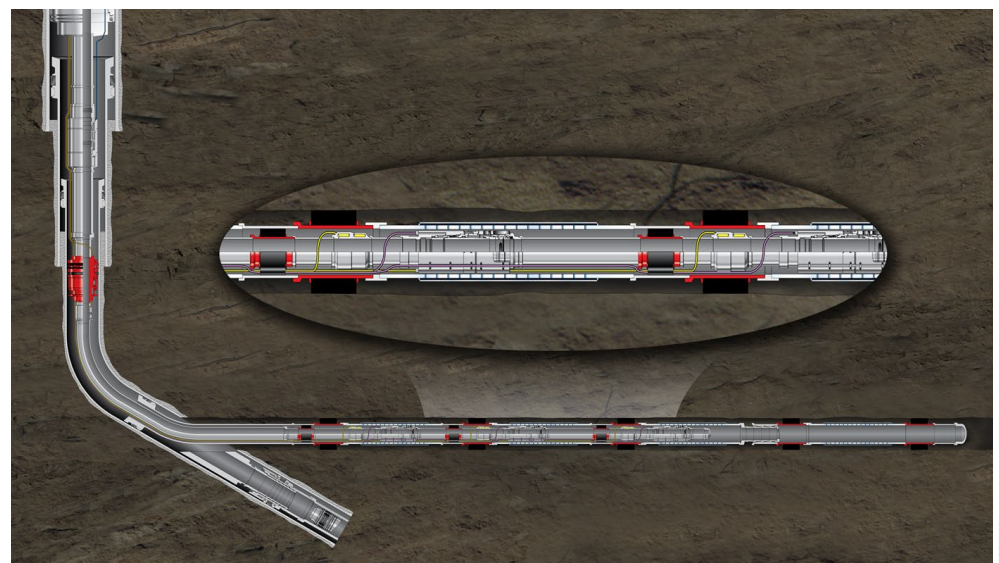
An operator in Norway needed to drill and complete a multilateral wellbore in a challenging reservoir. Additionally, the operator wanted to reduce the risks of the completion operation to help control costs and ensure no health, safety or environmental incidents would occur.

The drilling program called for the mainbore to be drilled and then sidetracked into a separate reservoir. Next, the team would complete multiple zones using complex equipment for production control and monitoring of well conditions.

Using Halliburton advanced completion equipment, all downhole valves and gauges functioned as designed, and zonal isolation was confirmed. All was completed without any HSE issues.

### CHALLENGE

The operator's plans for the multilateral well were ambitious, with three key challenges. First, the operation called for a deep sidetrack to be drilled out of the 10 3/4-inch main bore into a reservoir that was known to be challenging. Second, the well path was a total of 6,075 meters (19,931 feet) and had several doglegs. Additionally, the sidetrack length was planned for almost 4,500 meters (14,764 feet) - the longest drilled in the field. Third, the completion design was complex. It required positive zonal isolation, control valves for each zone, and dual pressure and temperature gauges for each zone to monitor well conditions.



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## **SOLUTION**

Based on previous success using Swellpacker® systems to address zonal isolation in a variety of challenging applications, the operator chose Halliburton to complete the project. The sidetrack was drilled as a 9 1/2-inch openhole section. This reservoir contained three distinct oil zones, which were to be isolated from one another. During the completion design phase, torque and drag simulations revealed a risk that helical buckling could be experienced for the lower completion stage while running to total depth. Halliburton proposed using its lateral liner washdown completion system with a two-run installation procedure to help eliminate this risk.

First, 1,000 meters (3,281 feet) of 6 5/8-inch screens were conveyed using drillpipe to total depth. On the second run, the remaining 3,500 meters (11,483 feet) were completed using 7-inch screens and blanks with Swellpacker systems that had an 8.75-inch outside diameter. The second completion assembly was then strung into the openhole liner top, providing complete sand control along all zones.

The well also called for an upper completion string. The upper completion was designed with three dual gauges. For isolation of each gauge, three Swellpacker Cable systems were used and spaced out along the upper completion inner string. To allow for individual zone control inside the sand screens, three 3 1/2-inch hydraulic flow-control valves were also integrated in the upper completion inner string. Additionally, hydraulic-operated, six-position gas lift valves were installed below the production packer, allowing for natural gas lift.

## **RESULTS**

The 4,500-meter top completion, using Halliburton advanced completion equipment, is the longest completion to be run for this well to date. All downhole valves and gauges are functioning, and zonal isolation has been confirmed. Drilling and completion was performed eight days ahead of budget. The entire Swellpacker Cable system installation took only 45 minutes per packer, compared to 12 hours per packer for standard hydraulic-set packers requiring splicing and testing above and below the packer. All was completed without any HSE issues.

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