

North Sea, Norway

Operator adds new lateral to existing mainbore to increase reservoir exposure and reduce overall cost per BOE

Multilateral retrofit installation extends production in slot-restricted field

CHALLENGE

- Overcome slot restrictions to enable further economic production
- Avoid well abandonment

SOLUTION

- ReFlexRite® completion system
- FlexRite® multibranch inflow control (MIC) system
- XtremeGrip® MLT system

RESULT

- Increased reservoir exposure for the field
- Maximized production from each multilateral leg
- Extended production life of mature well
- Delivered well 4.9 days earlier than expected with zero NPT

Overview

Retrofit multilateral technology allows operators to access new targets and produce from existing wellbores while maintaining production of the original slots with still viable economics. During retrofit multilateral well construction, the existing mainbore is temporarily plugged to allow an additional branch to be drilled. After well completion, the existing mainbore and the new branch are produced commingled, with inflow control valves regulating the flow from each branch.

Using proven reliable technology, Halliburton developed a retrofit multilateral solution for a North Sea operator to address various challenges and extend the productive life of mature fields.

Challenge

The lack of slots available to drill new wells challenged the operator to introduce new well designs and technical solutions. The operator needed the capability to retrofit existing productive horizontal wells into multilaterals to increase reservoir exposure.



FlexRite® System

- IOR Prize (Improved oil recovery)
Norwegian Petroleum Directorate (2006)

ReFlexRite® System

- Meritorious award for engineering innovation
Exploration and Production E&P Magazine (2007)
- Offshore energy achievement award in well construction
Offshore Engineering Magazine (2007)

FlexRite® MIC System

- Meritorious award for engineering innovation
Exploration and Production E&P Magazine (2014)

Solution

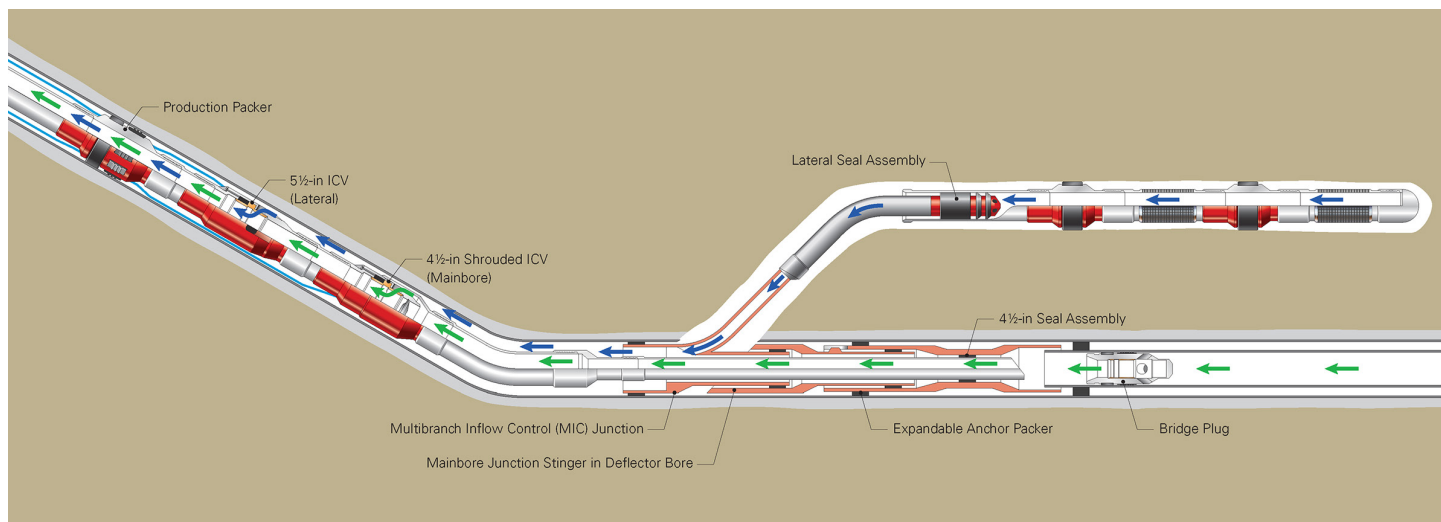
Halliburton recommended a retrofit multilateral installation that included the award-winning 9 5/8-in. FlexRite® multibranch inflow control (MIC) junction system and ReFlexRite® completion system. This combination allows the operator to mill a window in the existing mainbore casing for drilling and completing a new lateral branch to access a new production target. In addition, the FlexRite MIC junction system allows the branches to be flow controlled separately through interval control valves (ICVs).

The XtremeGrip® MLT anchor packer provides a reliable foundation and completion flexibility to drill and complete the lateral junction. The Halliburton liner deployment system (LDS) is used to install the lateral completion with standalone screens (SAS) and swellable packers.

During operations, the existing mainbore was temporarily plugged while drilling the additional branch. After well completion, the existing mainbore and the new branch produced commingled, with ICVs regulating flow from each branch.

Result

Halliburton successfully completed the operator's candidate well as a retrofit multilateral in late 2020. The Norway team delivered the well 4.9 days ahead of schedule, with zero non-productive time (NPT) related to multilateral operations, and all branches produced as expected. The XtremeGrip MLT anchor packer provided the necessary reference point for lateral construction and enabled installation of the FlexRite MIC junction. The retrofit multilateral installation helped increase reservoir exposure for the field, provided branch control of multiple laterals from the 9 5/8-in. casing, and maximized production from each multilateral leg. This significantly reduced the overall cost per barrel of oil equivalent (BOE) and maximized asset value.



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