

# Optimisation of Casing and Completion Workover using Glass Plug Technology

Date: Nov 2021

Region: North Sea, UK



## Product Capabilities

- Minimises POB during operation.
- Remotely activated from surface.
- Allows multiple pressure cycles to be applied before opening.
- Full bore ID after removal.
- Tested in accordance with ISO 14310 VO.

## Challenge

During the continued late-life development of one of the oldest oil fields on the UK Continental Shelf, a major North Sea operator identified a need to workover an Electric Submersible Pump (ESP) oil producing well with 'A' to 'B' annulus communication due to a failed scab casing string.

The operational plan involved recovery of the existing ESP completion and failed scab casing, installation of a new 9 $\frac{5}{8}$ " x 7" scab casing string and deployment of a new 4 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " ESP completion.

The operator wanted to remove time-consuming operational steps associated with setting both the tie-back and production packers.

## Solution

The remotely activated Inter Remote Shatter Valve (IRSV) is a non-explosive, ISO Vo qualified bi-directional glass barrier run as part of the casing, liner or tubing strings. By including an IRSV in both the scab casing and the new completion, the operator was able to set each packer and subsequently pressure test each string, without any intervention requirements.

Interwell worked together with the client to configure each IRSV set-up (including the pre-determined number of pressure cycles and preferred cycle pressure), taking into account the operational contingency scenarios and pressure ratings of the wellhead equipment. With communication open between the well and reservoir, a range of reservoir pressure scenarios acting below the barrier valves were also considered to ensure the correct IRSV selection and set-up.

After recovery of the existing ESP completion and scab casing, the first IRSV was deployed with the new scab casing for setting the 9 $\frac{5}{8}$ " x 7" permanent tie-back packer. Once on depth, the packer was set against the IRSV, and the casing and surface equipment pressure tested. Applying a pre-determined number of additional pressure cycles from surface to remotely open the IRSV.

The second IRSV was deployed below the 3 $\frac{1}{2}$ " x 7 $\frac{5}{8}$ " ESP packer during installation of the new completion. After landing the tubing hanger, the production packer was set, TRSSSV inflow tested and tubing test performed prior to bleeding off all pressure. The remaining pressure cycles were then applied to remotely open the barrier.



# Optimisation of Casing and Completion Workover using Glass Plug Technology

Date: Nov 2021

Region: North Sea, UK



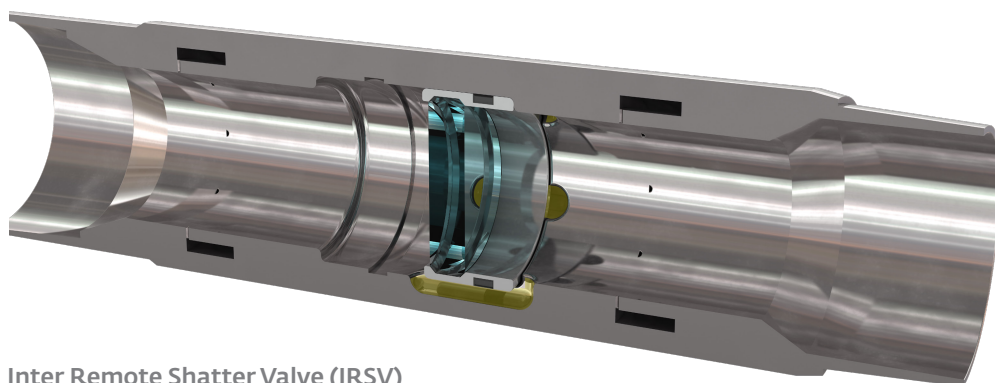
## Key Achievements

- Safe and successful ESP workover.
- Intervention-free packer setting and verification.
- IRSV used in both scab casing and new ESP completion.
- Full integrity restored between the A and B annulus.

## Value created

For the first time globally, two IRSV's were used in the same well to enable packer setting and verification, without intervention. The flexibility of the IRSV meant that it could be used in both the scab casing run and in the completion run, removing the need for a well intervention spread to be rigged up between operations.

Both IRSV's were successfully cycled open remotely, allowing the operator to safely and successfully complete the workover, while continuing oil recovery with full integrity restored between 'A' and 'B' annulus.



Inter Remote Shatter Valve (IRSV)