

CannSeal ZonalSeal Reinstates Production in Offshore Horizontal Oil Producer

Date: May 2023
Region: North Sea, UK



Key Achievements

- Successful replacement of the failed swell packer with precise placement of ZonalSeal epoxy outside the horizontal completion
- Combined with High Expansion Bridge Plug for WSO across the wellbore
- Enabled production re-start - initially at >1,400 bbls/day with no water

Challenge

A major UK operator was experiencing more than 70% water cut in a well after being brought online in 2019. The cause was attributed to loss of annular isolation from a swell packer between producing intervals of the 4-zone open hole completion.

Solution

The operator approached us to provide a coupled solution, providing isolation inside and outside the wellbore. The intervention required all tools to pass through a minimum 3.5" restriction in the well to reach the target depth for annular isolation in 8-1/2" open hole and then set a retrievable bridge plug in 5 1/2" 17# tubing.

Water Shut Off (WSO) across the wellbore was achieved by combining our Cannseal ZonalSeal technology with a 280-550 High Expansion (HEX) Retrievable Bridge Plug.

Our ZonalSeal epoxy-based sealant was carried into the well on e-line, the tubing was perforated and the epoxy injected into the annulus in a single run for each injection performed. During injection, accurate and online monitoring of the volume pumped, and injection pressure gives the operator full control of the entire injection sequence. The ultra-high viscous ZonalSeal epoxy does not slump or run away and is triggered by well temperature to cure after a pre-designated time.

Two ZonalSeal annular plugs were injected 2 meters apart above the failed swell packer and each post-cured using a separate run with a downhole heater tool - maximising the epoxy's strength.

A final injection was carried out to squeeze ZonalSeal between the two base plugs to complete the annular isolation.

Finally, a 280-550 HEX Retrievable Bridge Plug was set in the tubing to complete WSO from the water producing zone.

Case Study:

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Value

The failed swell packer was successfully replaced with precise placement of our ZonalSeal epoxy in the horizontal open hole completion. Combining Cannseal ZonalSeal with our HEX Retrievable Bridge Plug provided isolation across the wellbore and enabled a key oil producer to re-start after being shut-in for numerous years - initially restarting at > 1,400 bbls/day with no water.

