



Collapsed Tubing Anchor Repair

PROBLEM

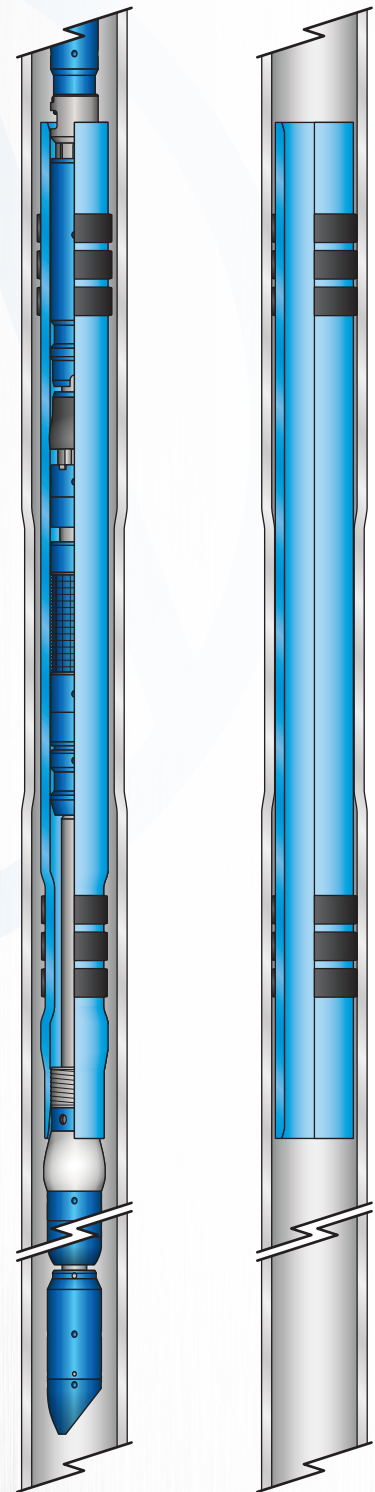
While running a tapered 4.5 x 5.0 in. long string completion, a mechanical tubing anchor pre-set 4,000 ft prior to reaching bottom. Only one slip on the tubing anchor set, which caused the ID of the 5 in. tool (4.044 in.) to collapse down to a 3.8 in. ID after weight was applied. The liner also failed a pressure test which halted the frac schedule.

SOLUTION

- Mohawk's premium cased hole patch system *FracPatch* enabled the operator to isolate the leaking tubing anchor and regain mechanical support to the 5 in. casing
- To handle planned frac loads, the operator required the casing patch to support 200,000 lb of tensile force and 11,000 PSI of internal pressure. These requirements were tested and verified prior to deployment.
- 3.880 in. OD seals were expanded to seal above the anchor while custom 3.700 in. OD recessed seals were used to drift the collapsed ID and seal below the failed anchor
- Special recessed seal joints can be utilized to drift and straddle various ID restrictions

RESULTS

- The patch was installed and expanded in one trip with no shoe drill out required, keeping all frac sleeves below clear of debris.
- Casing and patch successfully pressured tested to 11,000 PSI
- The well was successfully fractured by dropping balls on the frac sleeves below in the lateral.



PROJECT DETAILS

Location: North Dakota

Date: September 2014

Well Measured Depth: 21,300

Inclination: 0°

Casing: 5 in. 23.2 lb/ft

Patch Length: 49

Installed Patch ID: 3.275 in.

Top of Patch: 5,293 ft

Bottom of Patch: 5,341 ft

Frac Pressure: 11,000 psi