

Capillary-Injection Tubing Anchor Saves Nearly \$2 Million in 25-Well Campaign in 1st Year of Service

Objectives

- Reduce the rate of corrosion-induced rod failures in 25 wells. The newly drilled wells had higher failure rates than older wells in nearby assets in the same formation, and every 1 to 2 weeks the operator had to shut in the new wells to repair and replace corroded equipment at a cost of more than US \$25,000 per pull.

Our Approach

- The operator called on Weatherford to replace the existing conventional tubing anchors with capillary-injection tubing anchors to achieve the desired level of protection for the rods and reduce the failure rate.
- The new anchors set in just one-quarter to one-half of a full turn at surface. The reduced number of turns—compared to conventional tubing anchors that require nine to 12 turns to set—minimized the risk of damage to the chemical-injection capillary string.
- The new anchors also provided a bypass channel for running the capillary-injection string through for chemical treatments below the anchor, farther downhole, and adjacent to the pump intake. Because of the close proximity of the chemical treatment and the pump, the operator switched from a weighted, \$25/qt corrosion inhibitor injected at a rate of 5 qt/d to a lighter, more cost-effective corrosion inhibitor injected at a rate of 1 qt/d.
- Two days after bringing the wells back online, the residual corrosion inhibitor returns measured 66 to 68 ppm—higher than the operator's target range of 55 to 60 ppm and significantly better than the pre-installation measurements of 0 to 15 ppm.
- For more than one year, the capillary-injection tubing anchors have run with no need for intervention.

Value to Client

- Using the capillary-injection tubing anchor enabled the operator to avoid well workovers and to use a less expensive chemical treatment. As a result, annual operational costs fell to less than \$19,000 in each well for an estimated savings of \$77,000 per well—or approximately \$1,925,000 million in all 25 wells—in the first year alone.



The Weatherford capillary-injection tubing anchor has a bypass channel that enables the capillary string to reach the pump inlet for targeted chemical delivery.

LOCATION

USA

WELL TYPE

Onshore, gas

FORMATION

Permian Basin

TUBING SIZE

2-3/8 in.

PRODUCTS/SERVICES

Capillary-injection services

