

# Protect fiberglass lining of water disposal wells

Drillpipe-conveyed CoilFLATE packer saves 60 hours of rig time per well for KJO

## CHALLENGE

Need high-expansion retrievable packer that will not damage fiberglass-lined casing of water disposal wells and can be set through the BOP and retrieved through the wellhead.

## SOLUTION

Use drillpipe-conveyed CoilFLATE\* through-tubing inflatable packer.

## RESULTS

Average of 60 hours of rig time saved by deploying CoilFLATE packer with drillpipe.



*The CoilFLATE through-tubing inflatable packer distributes the anchoring force over a large surface area. Thus, no damage was done to the fiberglass coating of the well's casing.*

## Avoid damage to casing

Al-Khafji Joint Operations (KJO), a collaboration between the Aramco Gulf Operating Company Limited and the Kuwait Gulf Oil Company, encountered a challenge with one of its water disposal wells.

Water disposal wells in Khafji, Saudi Arabia, are completed with fullbore 7-in fiberglass-lined casing.

With kill brine in the well, only one barrier was in place during nipping down the drilling BOP and nipping up the wellhead. However, KJO safety standards dictate that two wellbore barriers are required to perform the operation safely. Thus, KJO needed a high-expansion retrievable packer that

- would not damage the fiberglass coating
- could be set through the BOP and retrieved through the wellhead before putting the well on injection.

## Protect fiberglass lining

The anchors of standard slip-type packers would likely damage the soft fiberglass lining. The unique slat-design anchoring mechanism of the Schlumberger CoilFLATE through-tubing inflatable packer distributes the anchoring force over a large surface area; therefore, no damage is done to the fiberglass coating of the casing.

## CASE STUDY: Drillpipe-conveyed CoilFLATE packer saves 60 hours of rig time per well for KJO

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Field test results showed that no damage was observed on the fiberglass lining after setting and retrieving the CoilFLATE packer. As a result, the CoilFLATE packer was selected as the best candidate for this application.

CoilFLATE packers are mostly deployed via coiled tubing (CT), which allows for accurate surface control of tension and compression forces on the CoilFLATE element during the inflation and anchoring process. While it is operationally safer, it takes additional time to rig up a coiled tubing unit (CTU). Consequently, KJO requested to develop the process and procedures to set CoilFLATE packers on drillpipe.

The risks associated with setting and retrieving the CoilFLATE packer with drillpipe were mitigated and action plans were executed. A yard test to use a CT BOP to cut the drillpipe was performed and a rig-up stack on top of the wellhead was provided to enable the retrieval of the CoilFLATE packer with drillpipe, in compliance with KJO safety standards. Later, an optimization of the rig-up procedure was implemented to further reduce rig time.

### Rig time saved

Four CoilFLATE packer jobs were performed on RKH water disposal wells. A CoilFLATE packer was deployed with CT on two of the wells, RKH-06 and RKH-07. On the other two wells, RKH-08 and RKH-09, a CoilFLATE packer was deployed with drillpipe.

A large amount of savings in rig time was achieved on those wells that deployed the CoilFLATE packer with drillpipe instead of CT. Rig time was reduced from 126 hours on the first well—which used CT—to 17 hours on the fourth well, which used drillpipe. An average of 60 hours of rig time was saved per well by using the CoilFLATE packer with drillpipe versus CT.

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