Weatherford®

REAL RESULTS

Centralized Sand Screen With Shunt Tube Eliminates Differential Sticking Threat, Delivers Void-Free Gravel Pack in Horizontal Well

Objectives

- Design a centralized sand screen with shunt tube technology (STT) to accommodate a distributed temperature sensing (DTS) system. In long, permeable, openhole horizontals, if the screens stick during gravel-pack operations, the slurry cannot be pumped through the drillstring and into the annulus, which can reduce the overall production rate.
- Run screens through a 9 1/4-in. horizontal open hole and mitigate potential differential sticking and damage during installation. In this offshore region, the shale formation lends itself to differential sticking, especially in extended-reach horizontal wells.

Results

- Weatherford personnel designed a new sand screen using STT. With the shunt tubes in place, if the formation blocked the primary work string, the gravel slurry would be shunted out of the main bore and into the annulus, creating a void-free gravel pack.
- The operator required the new screens accommodate a DTS system. The DTS system provided an absolute temperature profile determination for a formation across a producing well interval, enabling the operator to maximize the production rate.
- Weatherford personnel deployed the newly designed sand screen coupled with centralizers to mitigate potential differential sticking and optimize a uniform annular-packing area. The DTS system was encased in a shroud, ensuring full protection and safe passage to the production zone during deployment.
- At a total measured depth (MD) of 13,772 ft (4,198 m), 1,184 ft (361 m) of the centralized 5-in. STT screen with the DTS system was successfully completed, a first in the Caspian Sea.
- Although the shunt tubes were present, the operator encountered no differential sticking and experienced zero nonproductive time incidents.
- The gravel pack was successful, enabling the operator to complete the entire reservoir.

Weatherford's newly designed 5-in. centralized sand screen with STT mitigated potential differential sticking issues provided a uniform annular packing area and delivered a DTS system to the production interval, enabling the operator to acquire precise temperature measurements and complete the entire horizontal zone for production.

Location
Caspian Sea

Well Type
Offshore, oil producer

Hole Size
9-1/4 in.

Depth
- 13,772 ft (4,198 m) MD
- 8,809 ft (2,685 m) TVD

Products/Services
- Multifunction screen system
- 5-in. STT SuperFlo® sand screen

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Value to Client

- Using Weatherford's newly designed centralized sand screen with DTS system accommodating STT enabled the operator to ensure proper gravel-pack placement.
- The STT helped the operator complete the entire horizontal production zone, eliminating the need to cement and sidetrack the well or to produce less than 100% of the zone reservoir.
- The 5-in. screen shroud provided protection to deploy the DTS system to the reservoir, enabling the operator to acquire precise temperature measurements and maximize production rates.

Weatherford's STT, a part of the Multifunction screen system, provides an alternate means to deploy a gravel or frac pack around the work string, ensuring void-free packing in long, highly deviated, highly permeable variable-pressure zones in cased holes; open holes; and openhole, horizontal wellbores.

