

South China Sea

Operator deploys first integrated MatchSet® liner hanger hydraulic drop-off system with openhole Swellpacker® zonal isolation system offshore China

Drop-off system integrated with unconventional high-pressure, long-element, swellable packers to meet well-construction requirements

CHALLENGE

- Lower completion deployed with casing scraper
- Swellpacker® system with high pressure rating (up to 10,000 psi)
- Fullbore ID requirements
- String must reach TD
- Time savings and debris tolerance of hanger design

SOLUTION

- MatchSet® drop-off liner hanger system
- 7-in. × 8.15-in. × 6.7-m Swellable packers
- Collet ball seat and landing collar for ball dropping system
- Prejob planning and models

RESULT

- String deployed to TD with minimal resistance
- HRRT service tool string released hydraulically
- Saved two days of rig time attributed to job efficiency and post-job scraper run in single trip



HCT3071-001

MatchSet® hydraulic drop-off system with openhole Swellpacker® isolation system

Overview

Initial well construction plans in a field in the South China Sea involved deployment of four openhole packers in the 8.5-in. hole section to isolate production zones to a total depth (TD) of 4866 m. These openhole packers were to be deployed on a drop-off liner hanger system with a 4.28-m tieback receptacle (TBR) set at 4230 m to accommodate a tie-back seal assembly in anticipation of potential future fracturing operations. To reduce rig time, a casing scraper sized for the upper completion was also added to the deployment string above the TBR.

Halliburton proposed using a Swellpacker® K2 isolation system (6.7-m element, 9.5-m total length) with a 10,000-psi rating for openhole isolation. A 7× 9 5/8-in. MatchSet® hydraulic drop-off liner hanger system with a 4.28-m upper TBR was proposed for deployment in the BHA using a MatchSet system hydraulic release running tool (HRRT). In addition, a casing scraper was added to the deployment string to scrape the upper casing post the lower completion. The operator approved Halliburton's proposed plan, and the BHA reached TD with four swellable packers placed in the open hole. After release of the MatchSet HRRT service tool, the casing scraper was pulled to the desired depth to scrape the casing near the upper completion packer setting depth of 3892-m. Both the lower and upper completions were deployed and completed with success.

Challenge

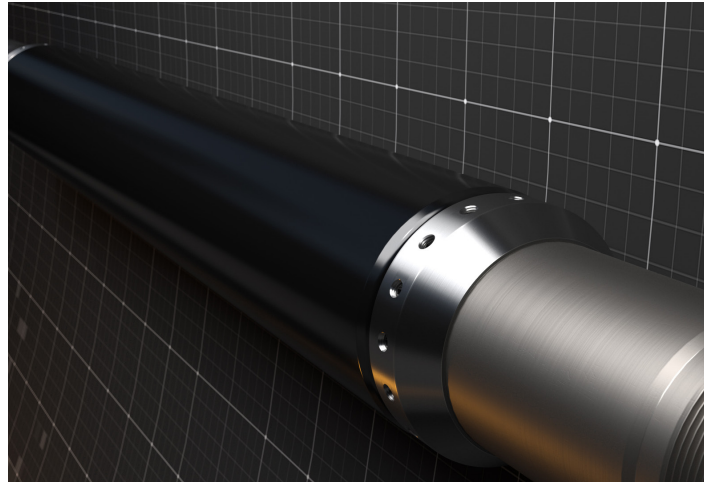
The first well in this field was defined by the operator as crucial. During the operation, the installation of multiple long-element swellable packers made the tripping-in process unpredictable. In addition, the inclusion of a casing scraper in the drillpipe string added potential challenges to the HRRT release capability from the MatchSet® hydraulic drop-off system.

Solution

Halliburton and the operator worked together on the well construction design, which included the MatchSet system and openhole swell technology. Drilling reports for the 8.5-in. section were sent to the Halliburton technical team onshore to simulate the lower completion process using both WellPlan® torque and drag software and SwellSim® computer software to enhance deployment efficiency. Wellsite instructions (WSI) were established using Halliburton Management Systems for processes and procedures.

Result

In recognition of the complex wellbore conditions, Halliburton worked closely with the operator to successfully deploy the lower completion, which saved two days of rig time. The MatchSet drop-off liner system, installed offshore, demonstrated its reliability and efficiency to deploy multiple openhole swellable packers. The upper completion casing was successfully scraped and cleaned before the full tool string was POOH. Use of local service personnel and adherence to proven WSI led to successful installations with a high level of service quality (SQ). No health, safety, or environmental (HSE) issues or nonproductive time (NPT) were recorded.



Swellpacker® isolation system

“The quality of the completion tools was verified and the SQ of the site personnel was excellent with no NPT or cost of poor quality (COPQ) incidents recorded.”

- Customer Response from Letter of Recognition

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