

Achieve Isolation in HPHT, Weak-Formation Well

BG Norge uses advanced cementing technology in Norwegian North Sea

CHALLENGE

Maintain hydraulic isolation in a high-pressure, high-temperature (HPHT) well with potential for severe lost circulation.

SOLUTION

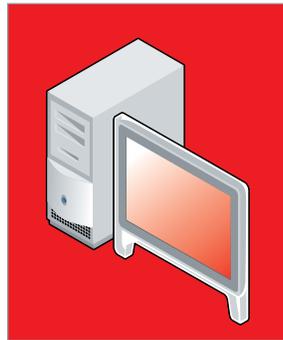
Used a combination of advanced cementing products and services, including

- CemSTRESS* cement sheath analysis software to design the cement
- LiteCRETE* lightweight slurry system for strength
- CemNET* advanced fiber technology to control losses.

RESULTS

Achieved hydraulic isolation and obtained designed top of cement.

The job achieved the designed top of cement and provided superior well support and hydraulic isolation.



CemSTRESS

Cement stress analysis software



CemNET

Advanced fiber technology to control lost circulation



LiteCRETE

Advanced lightweight cement technology

The application of CemSTRESS stress analysis software, CemNET fiber technology, and field-proven LiteCRETE slurry achieved hydraulic isolation.

In the Mandarin well on the Norwegian continental shelf, BG Norge encountered HPHT conditions and the potential for severe lost circulation.

The high-profile Mandarin well is similar to the Jackdaw wells offshore the UK. The shallow formations are weak and require superior support.

BG Norge planned a later high-pressure drillstem test that would stress the 20-in cemented section of the well, so hydraulic isolation between the surface and deeper sections was essential. It was also critical that the designed top of cement be achieved on this high-volume job.

Schlumberger solutions

CemSTRESS cement sheath analysis software was used to determine the ideal properties of the set cements. Multiple simulations were conducted to select the best cement, including modeling the planned pressure test.

The field-proven LiteCRETE lightweight slurry system was chosen because of its ability to achieve high compressive strength despite low density. To minimize lost circulation, CemNET advanced fiber technology was added to the cement slurry.

Cementing success

BG Norge pumped a record volume (238 m³ [1,500 bbl]) of high-strength LiteCRETE slurry across the weak shallow formation, adding CemNET fibers.

The job was executed and placed without incident. It achieved the designed top of cement and provided superior well support and hydraulic isolation.