

# Dragon Oil Eliminates Sustained Casing Pressure

Self-healing cement, lost circulation control, and optimized hole cleaning solve gas zone problem, Turkmenistan

**Dragon Oil, a major operator on the Caspian Turkmen shelf, eliminates longstanding sustained casing pressure (SCP) problems by improving mud removal before cementing, limiting lost circulation, optimizing the cement across a gas-bearing zone, and using CemFIT Heal\* flexible self-healing cement system to manage secondary hydrocarbon migration.**

## The operator's concerns

Sustained casing pressure occurs in 71% of Dragon Oil's wells in its largest production oil asset field largely because of insufficient isolation across a gas zone with a narrow pore-to-fracture pressure window and high risk of lost circulation.

## Why the problem was challenging

Enhanced cement placement techniques and industry best practices failed to solve the problem. In a few cases, SCP was seen immediately after cementing with high losses that prevented the top of cement from reaching the goal depth. More often, however, the problem was not related to cement placement but rather the inability of the cement to withstand downhole stresses from perforating, stimulation, and production.

## What Schlumberger recommended

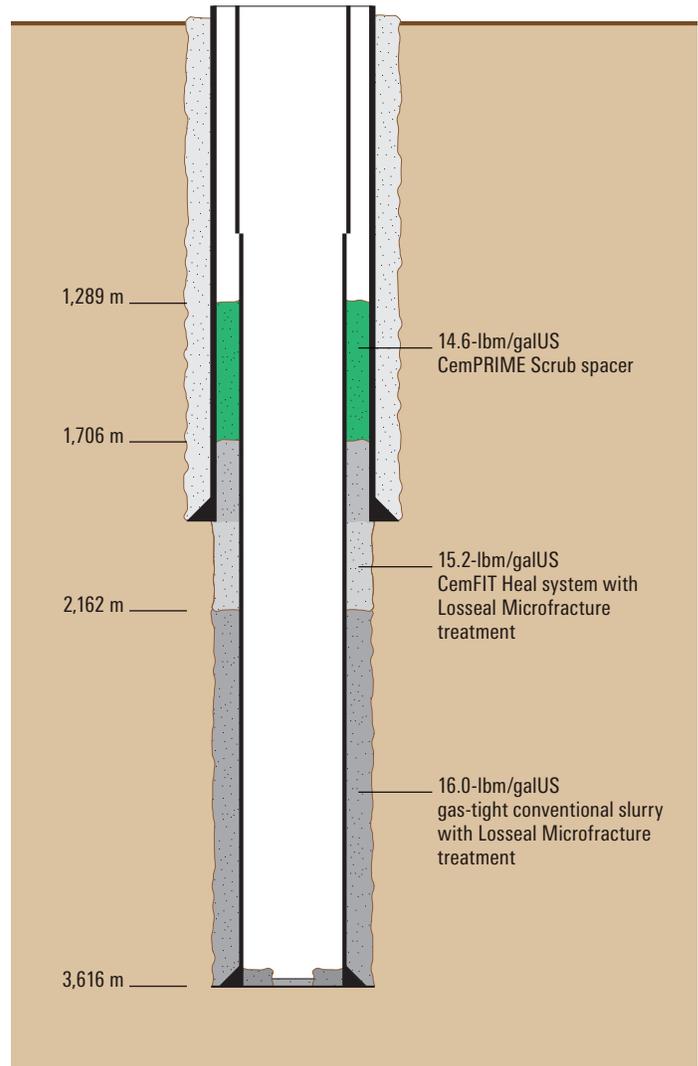
Engineers used CEMENTICS\* zonal isolation software to optimize a lead-tail cement system with a gas-tight conventional slurry covering the gas-bearing formations and CemFIT Heal system acting as a flexible, self-healing secondary barrier covering at least 450 m. In addition, for wells that experienced losses during drilling, Losseal Microfracture\* lost circulation control treatment was used to limit cement losses. Finally, to optimize removal of water-based drilling fluid, CemPRIME Scrub\* engineered scrubbing spacer was used for hole cleaning.

## What the operator gained

Schlumberger has used the plan to cement several new Dragon Oil wells. As occurred in prior wells, the B-annulus pressure gauges in those wells showed an initial pressure buildup after perforating. Unlike the prior wells, upon bleeding off the annulus pressure in the new wells, the pressure dropped to zero and did not increase again—indicating successful elimination of SCP.

## More technical details

The project is described in detail in [SPE-195945](#).



*The CemFIT Heal system performs in the Dragon Oil wells as a secondary barrier that can self-heal in case of sheath damage from downhole stresses such as perforating and production.*