

Middle East Operator Minimizes Drilling Losses with Fast Gel Strength Cement Technology

ThixoCRETE solution plugs challenging vugular loss zone to enable continued drilling after conventional lost circulation material failed to slow the losses

To drill high-inclination wells through a formation that experiences total circulation losses and shallow water flow, an operator in the Middle East used ThixoCRETE* lightweight lost circulation cementing solution to rapidly manage losses.

Lost circulation challenges

When drilling the surface sections of wells through a vugular, naturally fractured formation, a Middle East operator frequently experienced total circulation losses. These losses resulted in stuck pipe, high costs for lost drilling fluid, challenges related to cuttings and returns handling at surface, and well control risks because of a shallow flowing aquifer.

Conventional lost circulation material failures

Conventional lost circulation material (LCM) minimized losses while drilling wells at low inclinations, but the conventional materials were unable to stop or slow the losses when drilling at high inclinations.

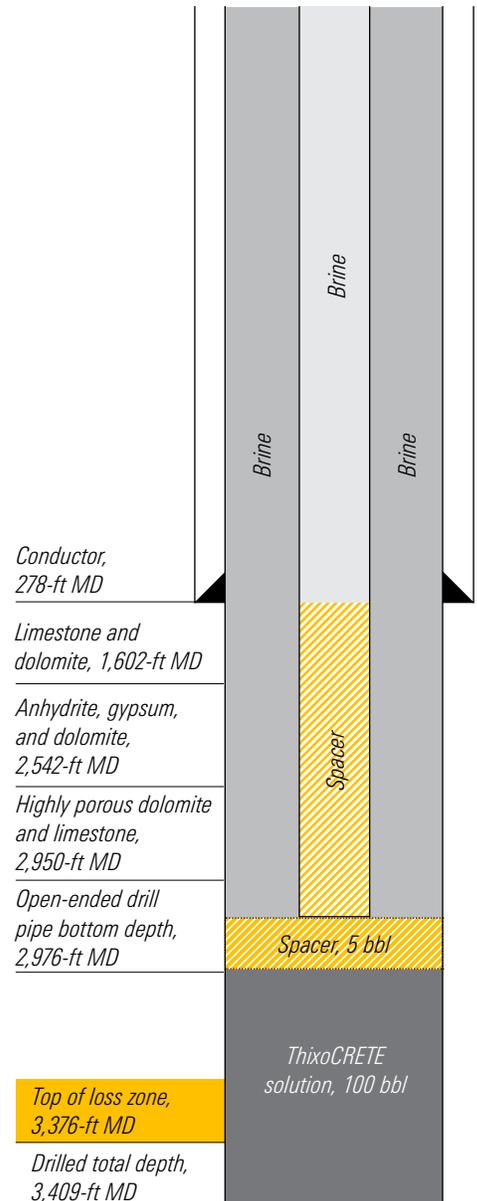
Cementing solution for plugging voids

ThixoCRETE solution combines lightweight high-performance trimodal cement and a thixotropic additive to rapidly deliver high gel strength and compressive strength. Its optimized solids content and plugging efficiency rapidly plugs large voids and fractures so that drilling can continue.

High gel strength and circulation success

ThixoCRETE solution was pumped by gravity feeding from approximately 200 ft above a loss zone while continuously filling the annulus with 9.5-lbm/galUS brine at approximately 1,000 galUS/min to maintain fluid level to surface.

The 10.5-lbm/galUS ThixoCRETE solution was designed to develop high gel strength as soon as pumping stopped. After the cement was placed, the operator managed to continue circulating with 90% returns of drilling fluids to surface, reducing from total losses to an acceptable 42 bbl/h.



After conventional lost circulation materials failed to remediate total losses, the operator placed ThixoCRETE solution across the loss zone. Its rapid and high gel strength development reduced the losses, enabling drilling to continue.