

X-Prima™ Squeeze Cures Persistent Losses While Drilling Surface Interval

Algeria

Challenge

Eliminate extreme losses while drilling surface interval

Solution

Newpark's proprietary X-Prima high fluid loss squeeze

Results

Severe losses successfully mitigated

While drilling in an unconsolidated calcareous formation in Algeria, a total loss of returns was experienced at 584 ft (178 m). Remediation including cement plugs were tried five times, but attempts to circulate fails. Fluid loss rates ranged from 50 to 75 bbl/hr (2.2 to 3.3 L/s) on each occasion.

The decision was made to spot X-Prima slurry in the open hole to control these persistent, unsustainable losses. A 220-bbl (35 m³) slurry with 105 lbm/bbl (300 kg/m³) X-Prima lost circulation material (LCM) was built. The drillstring was run open-ended to 367 ft (112 m), just inside the conductor. The drillstring was then run to bottom at 781 ft (238 m). Thirty cubic meters (189 bbl) of slurry were pumped at 11 L/s (4 bbl/min) and displaced with 3.3 m³ (20.8 bbl) of spud mud. This volume of slurry was, by calculation, sufficient to fill 304 ft (93 m) of the 26-in. wellbore to 477 ft (145 m), 90 ft (27 m) below the conductor. The pipe was pulled to 374 ft (114 m) and the hole was circulated with full returns at pump rates of 9 to 16 bbl/min (24 to 42 L/s), affecting a dynamic ECD squeeze of 70 to 100 psi (480 to 690 kPa). The pipe was pulled again and the bit was run to bottom. The pumps were turned on at 396 gal/min (25 L/s) and then increased to 792 gal/min (50 L/s) with sustained circulation. The 26-in. interval was drilled to total depth (TD) at 876 ft (267 m) with partial losses mitigated by sweeps of conventional LCM.

The X-Prima squeeze proved highly effective and was successful in resolving the heavy, persistent losses. The ability to successfully remediate the losses allowed the operator to continue drilling the well. X-Prima squeeze has continued to be preferred over conventional cement squeezes to remediate fluid losses.