

Arkansas: New CT MAGNOSTAR magnet recovers plug slips in milling operations

“During a plug milling operation, the CT MAGNOSTAR[†] magnet recovered metal slips that would have stayed in the hole, potentially choking the wellbore or damaging the ESP.”

M-I SWACO

Well Information

Location Arkansas, USA

Job date June 2013

Tool size 2⁷/₈-in CT MAGNOSTAR magnet

Hole size 5¹/₂-in cased hole

Fluid type Brine

The Situation

An operator in Arkansas needed to drill ten composite plugs with metal slips. The primary concern was that the slips would not be circulated out with the fluid and viscous sweeps being used. Leaving the slips in such a deviated hole means that the debris will likely collect in the heel of the well and create a choke, potentially reducing productivity. In the future, the well will most likely require the use of an ESP approximately 2–3 years after being put in production; any debris left in the hole could damage the stages of the pump.

The Solution

A 2⁷/₈-in CT MAGNOSTAR magnet was chosen to recover the metallic slips of the ten plugs to be drilled. The magnet was placed on top of the CT motor assembly to recover the debris while the milling operation was carried out.

The Results

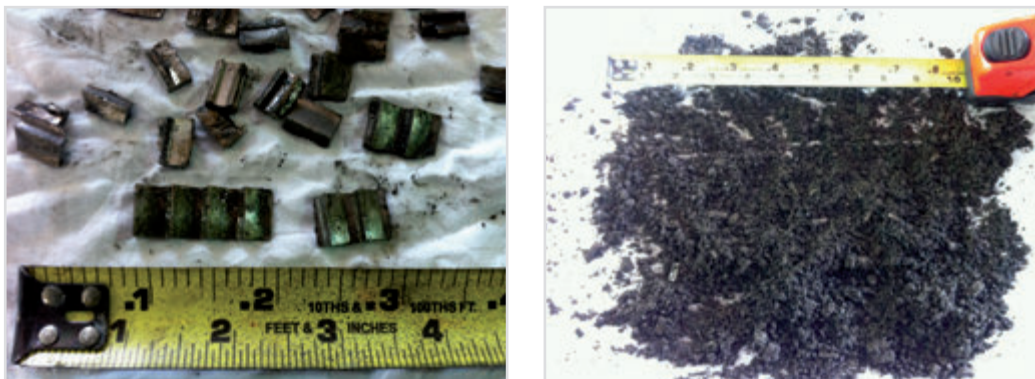
The CT MAGNOSTAR magnet recovered 2 lbm [0.91 kg] of fine metal shavings and pieces of the plug slips, some of which were longer than 1 in [2.54 cm]. Pieces this size would have been difficult to circulate out of the hole, especially because only water and viscous pills had been used in this well. Placing the CT MAGNOSTAR magnet close to the motor kept the hard slips away from the milling face, which resulted in faster operation and reduced stalls.

The Details

A total of ten Diamondback* composite drillable frac plugs were milled in 5.5-in, 20-lbm/ft casing. The well's total depth was 10,500 ft [3,200 m], with deviations exceeding 92°. All of the plugs were located deeper than the heel of the well. The BHA consisted of a 3½-in motor, 4¾-in triroller cone bit, and a multicycle circulating valve, which together milled all the plugs in one run. The average plug milling time was 29.7 min.



Pictures of the three sides of the CT MAGNOSTAR magnet as it was retrieved at surface after the milling operation.



Detailed pictures of some of the debris recovered, weighing 2 lbm and classified into slips and fine shavings.

Questions? We'll be glad to answer them.

If you would like to know more about the CT MAGNOSTAR tool and how it is performing for our customers, please call the M-I SWACO office nearest you.

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