

SlipStream RC Pro® Drills Outstanding 59 Plugs

4 - 1/2" SRP624MRS, Noble County, Ohio

CHALLENGE: To design a bit capable of effectively drilling various materials existent in a frac plug. Frac plugs are comprised of very hard outer slips, typically cast iron or ceramic, which surround ductile composites and elastomer cores. Steel tooth bits are ideal for drilling the softer cores but wear away quickly against the hard outer slips. Because of this, after approximately 20 plugs, plug drilling slows down considerably.

SOLUTION: Varel has developed a patent pending hybrid roller cone design, SlipStream RC Pro, which combines patented HET™ (High Energy Tumble) tungsten carbide inserts on the outer rows with premium DuraClad™ crowned steel teeth on the inner rows. This innovative hybrid cutting structure provides optimized drilling efficiency when drilling frac plugs.

RESULTS: In Eastern Ohio, an operator attempted to use competitor PDCs to drill up frac plugs in one of their wells. The first PDC drilled out the bridge plug in 4.5 hours. The second PDC was POOH after five hours of drilling through zero frac plugs. The operator then made up a BHA with a Varel 4 1/2" SRP624 on their stick pipe rig which drilled through 59 composite frac plugs in 22.5 hours at an average of 23 min/plug. As is typical with the SlipStream RC Pro, the cuttings created through this run were considerably smaller than those usually generated from competitor bits. Smaller cuttings allow for cleaner removal from the wellbore and provide easier pulling of the BHA while decreasing the need for short trips to clean the hole. In addition, the SlipStream bits provide shorter wash down times further decreasing rig time and time in the hole.



This is the typical appearance of a milltooth bit after drilling through frac plugs. The inner rows remain in good condition while the outer rows are worn beyond recognition due to the hard outer slips.



After drilling 59 composite plugs, this SRP received a 4-1-WT dull grade.

For more information on this bit and proposed applications please speak to your local Varel representative.