

## Varel Oval Cutters Set Field Records in Directional Application

### 12-1/4" V5190P2DGHX, Litchendjili Field, Congo

**CHALLENGE:** To continually improve overall performance in the Litchendjili Field while decreasing CPM for the operator. Previous runs with Varel's Oval cutter bits set ROP records but overall footage was held by a competitor.

**SOLUTION:** Varel engineers utilized the IMPACTS software to help create this Voyager series of PDC matrix body oval cutter bits. The Voyager bit with an oval cutter-cutting structure provides 46% more cutter exposure than a standard round cutter bit design. This allows for a significant ROP increase with reduced torque input due to the shape of the oval cutter. In addition, this bit includes an enhanced TSP gauge pad for additional durability, matrix shock studs for torque control, and a row of PowerCutters™ to maximize shoulder durability without sacrificing ROP potential.

**RESULTS:** Varel recently ran a single 12-1/4" V5190P2DGHX in an S shaped directional Litchendjili Field well on a push-the-bit RSS drive. The bit achieved directional objectives as planned by building angle from 20° to 63.5° while performing a small turn and then dropping angle to a final inclination of 33°. Average ROP was 44.8 m/hr (146.9 ft/hr) with 2191 meters (7188 ft) drilled. A picture of the dull is shown and shows that the bit can be run again without repair.



Dull grade of 1-1-WT-A-X-I-NO-TD achieved for this field record ROP and footage run.

12 1/4" Voyager Oval Cutter Performance, Litchendjili Field, Congo

