

# Optimized PermaFORCE design with CryoCut and Prism shaped cutters reduce bit trip and save drilling time

## CHALLENGES

- Complex interval drilling through high ROP shale section at beginning of run and hard, abrasive formations interbedded with limestone at end of run
- Bent motor assembly building a tangent
- Maintain high ROP in easy section and survive formation transitions in difficult section
- Reduced drilling efficiency due to cutter wear
- Maintain drilling efficiency at end of interval when bit is in worn state

## SOLUTION

- 9 7/8-in. PermaFORCE™ elite PDC drill bit
- Versatile Cutting Structure optimized for increasing ROP potential and transitioning smoothly through interbedded formations
- New cutter technology to increase cutting life in applications limited by abrasive wear and impact damage
- CryoCut™ shaped PDC cutters maintain cutting edge in hard, abrasive formations with stringers causing impact damage

## RESULTS

10% faster

ROP vs. field offsets

Drill same interval

with improved dull condition

