



AES DRILLING FLUIDS

CHALLENGES

- Drill the longest laterals ever in the Utica
- Provide efficient rates of penetration while cleaning the hole of cuttings
- Lubricate the wellbore for weight-on-bit and casing running

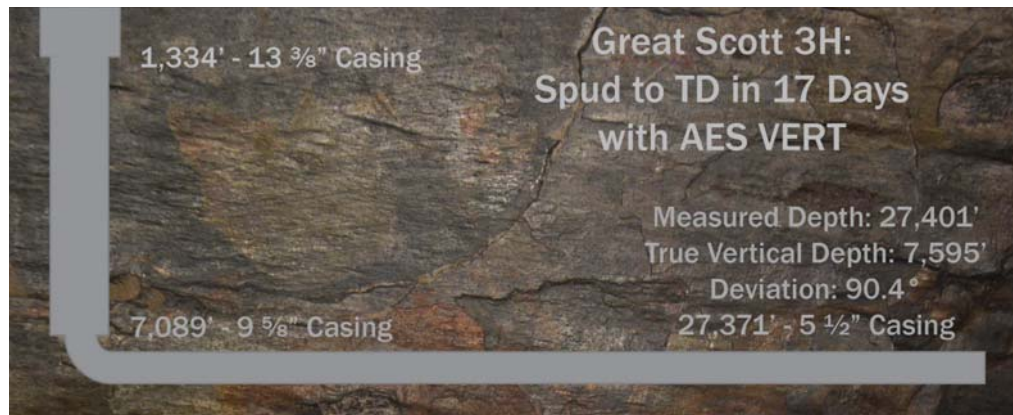
SOLUTION

- AES VERT diesel-based invert emulsion drilling fluid with optimized properties for hole cleaning
- Comprehensive drilling fluids maintenance program to complement best drilling practices

RESULTS

- The well reached total depth at 27,401' in 17 days - 0.6 days ahead of plan
- There were no reported issues pulling out of the hole or running casing, confirming a clean, quality wellbore
- AES VERT continues to deliver record lateral wells

Breaking records for Eclipse Resources: AES VERT[†] drills 19,000' lateral in the Utica at 27,000'+ total depth



Eclipse Resources is drilling multiple horizontal wells with laterals exceeding 19,000 feet using AES VERT. Extended laterals are critical to efficient production delivery in the Utica shale of Eastern Ohio.



Overview

As part of a record-breaking drilling program in the Utica shale, Eclipse Resources planned to drill laterals exceeding 19,000 feet. Extended laterals are key to drilling efficiency in the Utica shale, but nothing this long was attempted previously. AES Drilling Fluids formulated an AES VERT diesel-based invert emulsion system to optimize hole cleaning across these challenging intervals.

The drilling fluids program was written to optimize system properties along with best drilling practices for hole cleaning. The AES VERT properties were monitored throughout the drilling process to deliver a clean hole with no issues pulling out or running in with casing to total depth at 27,401. From spud to total depth, the entire well was drilled and cemented in 17 days, 0.6 days ahead of plan.

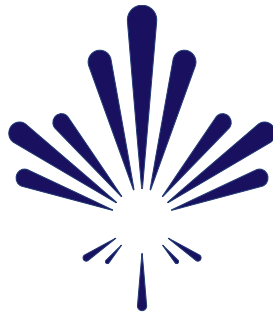
Details

Surface casing was pre-set on the Great Scott 3H well prior to drilling the intermediate and production intervals. The 11.3 lbm/gal AES VERT system was prepared at the liquid mud plant and sent to location.

After drilling out the shoe track, drilling commenced for the horizontal section using the AES VERT. Drilling fluid density was adjusted with barite and diesel to maintain properties and dilute low gravity solids. Density ranged from the 11.3 lbm/gal to 12.0 lbm/gal with a final density of 11.4 lbm/gal at total depth. Emulsion stability and oil-wetting was maintained through additions of ABS MUL[†] and AES WA II[†]. Regular additions of background LCM were used to control seepage losses.

Details (continued)

Effective hole cleaning was achieved with optimized rheology and proper drilling practices to avoid buildup of cuttings beds. Final measured depth was 27,371'. The 5 ½" casing was run to 27,371 with no major issues and cemented in place. Remaining AES VERT was returned to the AES Drilling Fluids liquid mud plant.



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