AES DRILLING FLUIDS

CASE HISTORY

CEASE & DESIST+ RESTORES COMPROMISED INTERMEDIATE SHOE, SAVING $250,000+ AND FOUR DAYS OF RIG TIME IN THE DELAWARE BASIN

CHALLENGE

- Suboptimal formation integrity at the intermediate casing shoe
- Severe downhole losses
- Reduced flow rates and ROP, increasing drilling time

SOLUTION

- A targeted squeeze treatment using CEASE & DESIST to restore wellbore integrity and improve fracture resistance

RESULTS

- Re-established casing shoe integrity, FIT improved by +1.0 lb/gal EMW
- Full circulation rates achieved with minimal total OBM losses (<50 bbl)
- Increased ROP and drilling efficiency
- Reduced total rig time by ~4 days

OVERVIEW

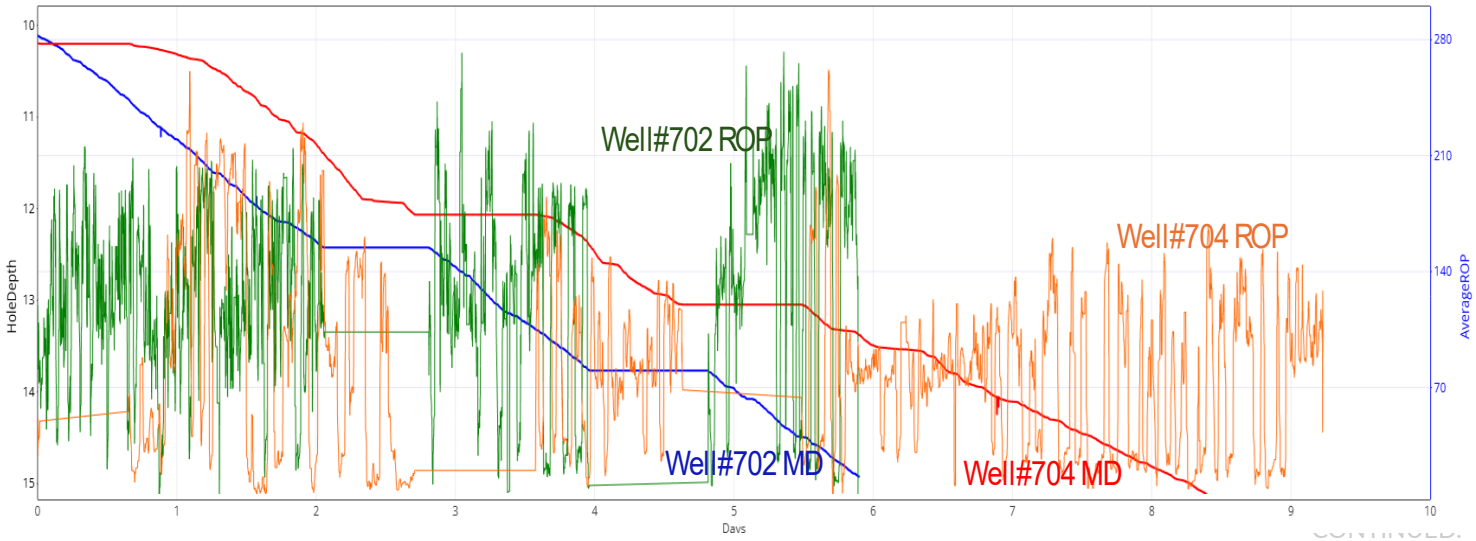
A Delaware Basin operator encountered poor formation integrity at the intermediate casing shoe across two wells in Eddy County, NM, leading to severe downhole fluid losses and reduced drilling efficiency.

On Well #704, multiple remediation attempts using conventional lost circulation material (LCM) failed to sustain formation integrity, resulting in losses of up to 180 bbl/hr and approximately 1,400 bbl of total oil-based mud (OBM) losses. Operational constraints, including reduced flow rates and ongoing LCM treatments, further impacted drilling performance.

In contrast, on Well #702, the operator deployed CEASE & DESIST, an engineered blend of granular and fibrous LCM with a resilient graphite component. A single targeted treatment restored casing shoe integrity, increased formation integrity, and enabled drilling at full circulation rates with minimal losses (<50 bbl OBM throughout the lateral section).

The improved wellbore conditions resulted in higher drilling efficiency, with the well reaching total depth approximately four days faster than the offset. The casing was successfully run and cemented with full returns, confirming effective zonal isolation and sustained shoe integrity.

CEASE & DESIST cures losses on Well #702, enabling operator to reach TD faster with optimal drilling parameters
(offset Well #704 control drilled to limit downholes losses after unsuccessful attempts with 3rd party LCM)



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DETAILS

Well #704

Following drill-out of the intermediate casing shoe at 9,368 ft MD / 9,158 ft TVD, a Formation Integrity Test (FIT) established an Equivalent Mud Weight (EMW) of 12.0 lb/gal. A 25-bbl pill of competitor LCM at 25 lb/bbl was spotted and hesitation-squeezed, improving the FIT to 13.4 lb/gal EMW.

After displacement to OBM, losses initiated at approximately 180 bbl/hr. Additional remediation efforts included:

- A second 25 lb/bbl LCM pill (no reduction in losses)
- A 100 lb/bbl squeeze treatment (no additional pressure gain)
- Subsequent FIT reduction to 12.8 lb/gal EMW

During drilling, flow rate was reduced from 375 gpm to ~250 gpm, and 10 lb/bbl LCM sweeps were pumped continuously to limit losses. The well was drilled to TD (20,446 ft MD) at an average ROP of 60–70 ft/hr.

Despite these measures, cumulative losses totaled approximately 1,400 bbl of OBM.

Well #702

After drilling out the intermediate casing shoe at 9,228 ft MD / 9,222 ft TVD, an initial FIT recorded 11.5 lb/gal EMW. A 10-bbl CEASE & DESIST pill at 20 lb/bbl was spotted and squeezed at the shoe, increasing FIT to 12.5 lb/gal EMW.

Following displacement to OBM, drilling commenced at 275 gpm, with gradual increases to 375 gpm with no observed losses.

The lateral section was successfully drilled to 19,915 ft MD with an average ROP of 90–120 ft/hr—approximately four days faster than the offset well.

The casing was run without incident, and cementing operations achieved full returns. Total losses were limited to less than 50 bbl of OBM, demonstrating effective restoration of shoe integrity and zonal isolation.