

AES DRILLING FLUIDS

CHALLENGES

- Losses initiated boring 12 ¼" pilot hole, continuing for 49 days while attempting to ream to 26"
- Efforts with a conventional fluid system and lost circulation material failed to cure losses
- Loss rates required a reduction in circulating rates and extensive mixing to maintain system volume

SOLUTION

- Leverage combination of lost circulation material and highly thixotropic EnerSEAL HDD to treat losses and regain circulation
- Ream with EnerSEAL HDD system to minimize risk of further losses

RESULTS

- Losses cured within 4 hours of LCM/EnerSEAL HDD introduction
- Reaming continued without fluid-related issues using EnerSEAL HDD, eliminating excess mixing
- Unique EnerSEAL HDD properties enabled hole cleaning even at reduced circulating rates

EnerSEAL HDD[†] cures losses in fractured formation in Rutherford County North Carolina

Overview

An HDD river crossing operation was experiencing severe losses for 49 days using a conventional bentonite drilling fluid system. Losses began while boring the 12 ¼" pilot hole and continued for the 26" ream.

Efforts to cure losses were unsuccessful, requiring the rig crew to mix up to 14-18 pallets of bentonite per day to maintain system volume with circulating rates reduced to 260 gal/min from 500 gal/min.

AES Drilling Fluids arrived on location and pumped a lost circulation treatment in combination with EnerSEAL HDD, a highly thixotropic drilling fluid ideal for lost circulation as it thickens once it invades fractures. The system cured the losses and reaming commenced with the EnerSEAL HDD system. The reaming operation continued without fluid-related issues.



River crossing route



Crossing location

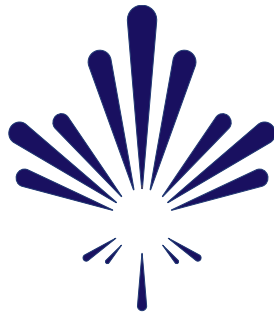
Details

Initial treatments to cure losses included sweeps and pills with partial to intermittent success. Upon arrival to location, AES Drilling Fluids recommended an aggressive LCM pill in combination with EnerSEAL HDD.

60 bbl of the LCM pill was pumped while adding additional LCM material into the fracture, followed by 60 bbl of untreated drilling fluid to clear the pipe.

A second pill featuring 120 bbl of thickened EnerSEAL HDD was pumped across the loss zone and allowed to soak overnight. As EnerSEAL HDD enters a fractured zone, it thickens, minimizing fluid invasion into loss zones.

The next day, EnerSEAL HDD with standard drilling properties was circulated throughout the crossing with complete returns. Reaming commenced without significant loss events. No further LCM was required and drilling continued without drilling fluid-related issues.



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www.aesfluids.com

info@aesfluids.com

888-556-4533

Revision 1.00

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