

ECM 1† and ECM 2†: Filling the Void in Ward County, Texas



CHALLENGES

Historical approach utilized third-party LCM blends at 50 lb/bbl without success
Total losses required additional fluid deliveries to supplement volume
Decreased ROP to maintain mud weight and ECD below fracture gradient



SOLUTION

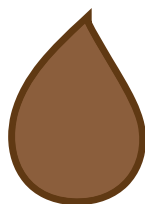
60 lb/bbl lost circulation pills formulated with 25 lb/bbl ECM 1, 25 lb/bbl ECM 2 and 10 lb/bbl ENERLOC†
10 bbl sweeps of the 60 lb/bbl blend each stand while drilling ahead



RESULTS

- Reduced mud losses by 37% and base oil consumption by 57% (compared to previous well)
- Reduced drilling days by 42% and total cost for the interval by 30% (compared to previous well)
- Eliminated losses while drilling production interval

Mud Losses



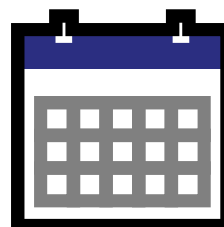
37% Less

Diesel Usage



57% Less

Drilling Days



42% Less

Interval Cost



30% Less

Reduction of cost metrics for production interval when treating total losses with ECM 1, ECM 2 and ENERLOC compared to 3rd party LCM

OVERVIEW

An operator drilling the production interval of a well in Ward County, Texas lost full returns after drilling through a suspected void. Previous wells drilled by the operator that encountered total losses utilized third-party LCM blends without success. AES Drilling Fluids recommended a blend containing ECM 1, ECM 2 and ENERLOC to cure losses and return to normal drilling operations.

ECM 1 and ECM 2 are complementary products that provide an optimized particle size distribution to cure losses while drilling. This approach prevents sending a variety of products to the rigsite for typical loss scenarios. For larger fractures, ENERLOC is added to increase the particle size distribution.

The loss treatment consisted of building and spotting 60 lb/bbl pills into the loss zone and allowing time for the formation to heal. No issues were encountered when pumping through MWD or directional tools. Ultimately, a total of four LCM pills were spotted into the loss zone, after which full returns were re-established, enabling normal drilling operations to resume. Production interval TD was reached without any additional losses.

DETAILS

While drilling in the lateral interval at 17,900 feet MD, a void was encountered resulting in total loss of returns. AES Drilling Fluids recommended a blend of 25 lb/bbl ECM 1, 25 lb/bbl ECM 2 and 10 lb/bbl ENERLOC based upon experience in the area. Four pills were spotted, giving each two hours to heal and increasing pump rates after each one. Full returns were re-established.

While drilling, 10 bbl sweeps containing the 60 lb/bbl LCM blend were pumped each stand to prevent further losses. The interval was drilled to TD successfully with no additional losses to formation.

Total losses occurring on previous wells utilized third party LCM with no success. This resulted in increased mud losses, higher base oil consumption, more drilling days, and higher total cost for the interval. These metrics were reduced by 37%, 57%, 42% and 30% respectively when utilizing the ECM 1, ECM 2, and ENERLOC blend.





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