

# G-SEAL PLUS Agent Helps Cut Drilling Fluid Costs and Reduce Hole Cleaning Time Offshore Myanmar

Wellbore stabilizing agent helps decrease rig time, prevent fluid invasion, and improve wellbore stability in appraisal and development wells

## CHALLENGE

Eliminate NPT during backreaming to alleviate potential hole packoff while ensuring proper wellbore cleaning on development wells offshore Myanmar.

## SOLUTION

Deploy G-SEAL PLUS\* wellbore stabilizing agent in oil-base drilling fluid to reduce the time required for backreaming, decrease NPT, prevent fluid invasion, and seal formation microfractures that can lead to instability.

## RESULTS

Provided smooth, trouble-free tripping and enhanced wellbore stability at lower mud cost per section.



## Reduce backreaming time in offshore application

While drilling appraisal and development wells offshore Myanmar, an operator encountered issues when tripping out of hole after drilling the 12¼-in section. Although no issues arose during drilling, tripping was slow because the wellbore required backreaming to alleviate potential hole packoff and to ensure adequate hole cleaning before drilling could resume. Backreaming out of a newly drilled formation took 10 days on average, in addition to 7 days required for the initial drilling. The operator turned to M-I SWACO to find a solution that would enable rig-time savings without compromising wellbore cleaning or hole integrity.

## Use G-SEAL PLUS agent to cost-effectively improve drilling

M-I SWACO recommended G-SEAL PLUS wellbore stabilizing agent to improve wellbore quality before tripping out. The agent helps reduce rig time and ensure wellbore stability by preventing fluid invasion and sealing microfractures. It features a customized grind size to enable bridging and sealing porous and fractured formations in water-oil, or synthetic-base mud systems. Additionally, the agent is completely inert and does not affect the rheological properties of drilling fluid systems.

To validate the recommendation, laboratory work was conducted using a permeability plugging apparatus and aluminum oxide discs that corresponded to the sand-size matrix. Test results showed a 50% reduction in filtrate spurt loss and improved permeability plugging after the G-SEAL PLUS agent was added to the fluid.

## Enhanced wellbore stability and reduce costs

The operator added G-SEAL PLUS agent to the drilling fluid system at a concentration of 5.7 kg/m<sup>3</sup> [2.0 lbm/bbl]. The concentration was maintained by adding 2 sacks per hour to compensate for product loss over the fine shaker screens while drilling the section, for sealing and lubricating the filtercake, and for sealing the formation microfractures.

After applying G-SEAL PLUS agent, the operator pulled the drillstring to the point below the shoe where the blend was added. The drillstring was tripped out easily and without issues, and all drilling fluid properties remained stable with no unplanned treatments required. The G-SEAL PLUS agent helped minimize the mud cost for completing the section and exhibited no adverse effect on mud properties.

Description	Program	Actual
Density, lbm/galUS	13.0	13.0
Plastic viscosity, cP	As low as possible	42–61
Yield point, lbf/100 ft <sup>2</sup>	20–25	18–27
Viscometer reading at 6 rpm	12–15	11–15
10 s gel strength, lbf/100 ft <sup>2</sup>	12–18	12–16
10 min gel strength, lbf/100 ft <sup>2</sup>	18–30	21–28
HPHT fluid loss at 250 degF, mL/30 min		
From shoe (1,604-m TVD) to 1,000-m TVD below the shoe (2,604-m TVD)	< 4	< 3.8
From 2,604-m TVD to TD (3,142-m TVD)	< 2	< 1.8
Electric stability, V	> 500	> 489
Oil/water ratio	75/25–80/20	75/25–80/20
Low-gravity solids, %	< 6	< 5.8
Excess lime, lbm/bbl	> 3	2.08–3.38
Water-phase salinity, mg/L	220,000–230,000	203,000–247,000

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