SOLUTION PROFILE

BSS06-026

TAU-MOD™ Viscosifier Enhanced Rheology Properties of ACCOLADE® Synthetic-Based Mud

Walker Ridge, Gulf of Mexico

Operator's Challenge

Beginning on July 30, 2005, a large independent operator was preparing to sidetrack a well in 8,236 ft of water by cutting and pulling a portion of a 9 5/8" liner. The ACCOLADE® synthetic-based mud system had been treated with LE SUPERMUL™ emulsion stabilizer and RHEMOD™ L suspension agent without well circulation from July 30, 2005 to October 10, 2005. The rig operations had included cutting and pulling the liner, hanging off the drillstring and evacuating for Hurricane Katrina; and milling a window, hanging the drillstring off and evacuating for Hurricane Rita. The well had been circulated bottoms up on five occasions and circulated for more than 4 hours on only three additional occasions during this 73-day period. It exhibited no barite sag. The 43° angle well was to be sidetracked to a 54° angle and finished with extensive logging and testing. Therefore, the rheological properties of the mud system were of utmost importance.

Halliburton's Solution

The 12.0 ppg ACCOLADE mud system required an increase in the recommended LE SUPERMUL stabilizer and RHEMOD L suspension agent concentrations for the high angled well, as well as the addition of TAU-MOD viscosifier at 1.0 to 3.0 ppb. The addition of the latter product proved effective in stabilizing the rheological properties once the concentrations of LE SUPERMUL stabilizer and RHEMOD L suspension agent were increased. There were no weight fluctuations for the mud for the remainder of the well, including seven consecutive days of logging and testing.

Operation	Pipe Hung Off	Cutting Window Mud Has Been Sheared	Added TAU-MOD viscosifier 1 ppb	Wait on Weather New Mud	Added TAU-MOD viscosifier 3 ppb
Date	26-Aug-05	10-Sep-05	13-Oct-05	22-Oct-05	1-Nov-05
Mud Weight, ppg	12.6	12.6	12	14.6	14.6
Plastic Viscosity	49	49	50	60	62
Yield Point	17	21	25	20	31
Gel Strength, 10 s/ 10 m/ 30 m	8/16/18	8/21/24	10/17/18	10/18/20	14/24/28
600 rpm	114	119	125	140	155
300 rpm	64	70	75	80	93
200 rpm	45	53	57	59	71
100 rpm	28	34	37	36	45
6 rpm	6	8	10	9	13
3 rpm	5	7	9	9	11
Tau 0	4.2	5.33	7.01	6.53	9.2
% Low Gravity Solids	3.5	4.3	2.9	4.8	2.7
LE SUPERMUL stabilizer, ppb	9	10	12	10	12
RHEMOD L suspension agent, ppb	1.5	1.5	2	2	2

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Economic Value Created

Extensive field and laboratory tests determined what effect the increase in product concentrations would have on the fluid rheology and equivalent circulating density (ECD). Baroid Fluid Services personnel were able to enhance the rheological properties of the mud without changing the ECD. This has proven to be critical in wells with less than adequate shear of the mud system and mud systems with reduced percentages of low gravity solids. The addition of TAU-MOD viscosifier eliminated the need to circulate and condition the mud system, common with new SMB volume, which saved 4 hours of rig time for a cost savings of $75,000.

Solution Technology from the Solution People[SM]

For more information contact your Baroid Fluid Services Product Champion.

Ref: EVC number

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