SEVERE LOST CIRCULATION ADDS TO OPERATOR’S WELL COSTS

In 2012, an operator in Washakie County, Wyoming, was having problems with severe circulation in the area; on a previous well, 1,033 bbl of oil-based mud (OBM) was lost, amounting to a total well cost of more than USD 380,000. As an added challenge, there was a previous recommendation of 18 lb/bbl of lost circulation material (LCM) that could be added to the drilling fluid due to the tool restrictions in the drillstring.

OPTIMIZED LCM PILLS AND SWEEPS CURE LOSSES WITHOUT PLUGGING DOWNHOLE TOOLS

Baroid consulted with the directional company and determined that it would be permissible to increase the concentration beyond 18 lb/bbl as long as the appropriate particle size was maintained. Using this information, Baroid customized a lost circulation solution specific to the well. Due to recent successes with STOPPIT® LCM in nearby areas, Baroid recommended this product for pill treatments and calculated particle sizes and concentrations of BARACARB® LCM for background treatments. These two products were ideal because STOPPIT LCM is an engineered, one-sack solution that can be made available in cost-efficient “super-sacks,” and BARACARB LCM helps maintain optimal particle size for downhole constraints. Sweeps, ranging in volume from 20 to 40 barrels, consisted of 30 lb/bbl of STOPPIT and BARACARB 600 LCM, and were pumped on every stand throughout the known loss zone. In addition, BARACARB 50 and BARACARB 150 LCM were pumped in a 10-lb/bbl of background concentration throughout the length of the known loss zone.

RESULTS

» Reduced downhole losses by 827 bbl
» Decreased drilling fluid costs by nearly 400 percent
» Saved four days’ worth of rig costs
» Enabled operator to increase drilling program by 4–6 wells

STOPPIT® and BARACARB® LCM Blends Significantly Reduce Fluid Costs and Rig Time

LCM SOLUTION ENABLES OPERATOR TO INCREASE DRILLING PROGRAM

WASHAKIE COUNTY, WYOMING

CHALLENGE

Cure severe lost circulation issues in an area where the previous well lost 1,033 bbl of OBM and downhole tools restricted LCM concentrations

SOLUTION

Customized STOPPIT® and BARACARB® LCM blends for sweeps and background treatment, providing:

» Optimized particle size distribution to increase allowable LCM concentration
» Sweeps pumped every stand in loss zones
» Background treatment of 10 lb/bbl LCM while drilling

OFFSET WELLS

Depth vs. Days

Days on well reduced by four days

Depth vs. Cost

Cost savings for reduction of lost OBM

CASE STUDY

Depth vs. Days

Well 1 (prior to LCM solution)
Well 2 (with LCM solution)

Cost savings for reduction of lost OBM

Well 1 (prior to LCM solution)
Well 2 (with LCM solution)
With this Baroid solution, downhole losses were reduced by 827 bbl, and, overall, fluid costs were reduced by nearly 400 percent. Drilling days were reduced from 30 to 26, saving four days’ worth of rig costs, in addition to the savings in fluid costs. The Baroid team’s customized lost circulation solutions have allowed oil-based drilling, the preferred method in the area, to be more economically viable. Due to the economic success of this solution, the operator has increased the number of wells in this program by 4–6 wells.