



Drilling Fluids Graphics (DFG™) Software

Drilling Fluids Graphics (DFG™) Software Helps Prevent Lost Circulation

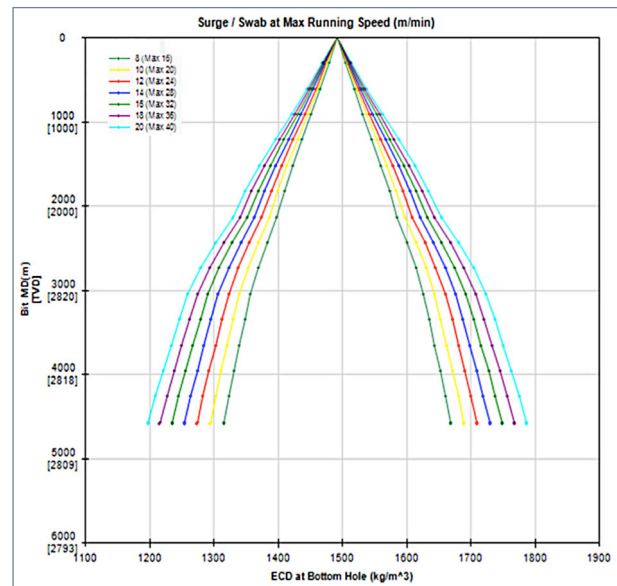
Location: Calgary, Alberta, Canada

Overview

Husky Oil had experienced lost circulation events while drilling and running completion string in Calgary, Alberta, Canada. Lost circulation in this formation typically occurred when the equivalent circulating density (ECD) reached 1,700 kg/m³. In order to avoid future losses, Husky Oil asked the Halliburton Baroid team to recommend adjustments for the company’s drilling program.

Solution

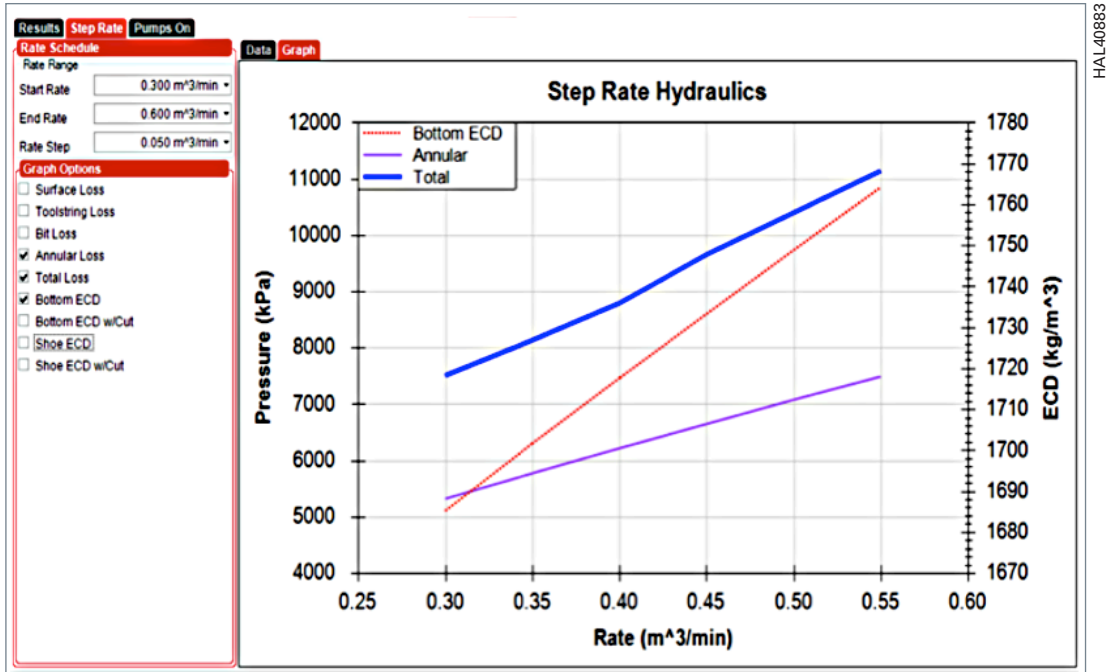
The Baroid team utilized its industry-leading Drilling Fluids Graphics (DFG™) software to accurately model the ECD for the wellbore. DFG simulations can be used to model different sensitivities of rate of penetration (ROP), cuttings load, and pump rates to help optimize the ECD and reduce risk to the customer. DFG software’s surge and swab calculations help identify the optimal running speeds for the casing.



Surge and swab calculations help model pressures during trips in and out of the wellbore.

For Husky Oil, Baroid personnel used DFG software to calculate the ECD at the weak spot in the lateral section of the well. This was done by analyzing the rig recorder data and correlating the loss trend to the ECD experienced at a given position in the wellbore. Once the maximum ECD was known, drilling and running speed parameters were presented to the customer. Husky Oil applied these recommendations to the operation and was able to eliminate further instances of lost circulation.

CHALLENGE	SOLUTION	RESULT
Husky Oil was experiencing lost circulation events while drilling and running completion string in Canada.	Baroid Drilling Fluids Graphics (DFG™) software simulations were run to determine ECD at the weak spot in the lateral section of the well, and running speeds were adjusted to compensate the equivalent mud weight (EMW) that the wellbore experienced.	Husky Oil was able to avoid future lost circulation events, saving approximately four hours of rig time and eliminating another lost circulation treatment for an overall cost savings of more than US\$24,500.



Step rate hydraulics demonstrate the probability of losses at different ranges of ECD and rates of penetration.

Typical lost circulation events in this field can take over four hours to remediate with the use of additional lost circulation treatments. By eliminating the lost circulation events, the Baroid team was able to save Husky Oil a minimum of four hours of rig time, and to prevent further material expenditures for lost circulation treatments. Overall cost savings for the customer were estimated at more than US\$24,500.