

CASE STUDY

MICROGUIDE IDENTIFIES AREA OF SEVERE TORTUOSITY AT SIDETRACK KOP, ELIMINATING RISK OF STUCK PIPE INCIDENTS AND FAILED COMPLETIONS

► TECHNOLOGY

- MicroGuide™ wellbore tortuosity logs

► APPLICATION

- Sidetrack drilling
- Whipstock setting
- Tortuosity identification

► LOCATION

- North Sea

INDUSTRY CHALLENGE + OBJECTIVE

An operator in the North Sea was in the process of preparing to sidetrack by cementing and setting a whipstock. Due to the nature of the job, MWD surveys were not available and would have shown high magnetic interference from the casing. After completing the kickoff, the operator wanted surveys to ensure the kickoff was successful in the right direction. Additionally, they wanted to identify any tortuous wellbore sections that could be problematic or affect future completions.

TECHNOLOGY + SERVICE SOLUTION

- Once the high-resolution surveys were retrieved, they were processed with the MicroGuide analysis to identify wellbore tortuosity. MicroGuide displayed areas of sharp doglegs and other bends in the hole by charting high-resolution survey data against depth to show when and where the wellbore changed direction. In addition to inclination- and azimuth-versus-depth charts, tortuosity graphs and 3D wellbore renderings were available to show the maximum effective OD of a straight object and if it could pass through the hole.

RESULTS + VALUE DELIVERED

- Post-run analysis of the surveys with MicroGuide showed the kickoff point was extremely tortuous. In just a couple meters, the wellbore took nearly a 90° turn. Over a 50-m distance, it would be impossible to pass any straight object through without significant bending.
- Identifying this section of severe tortuosity allowed the operator to be mindful when tripping in or out of the hole. Without this knowledge, the operator would have faced multiple stuck pipe incidents or failed completions, which would have been extremely costly.

