CASE STUDY

MICROGUIDE REVEALS SEVERE TORTUOSITY AND HELICAL BUCKLING IN WELLBORE THAT WAS CAUSING ARTIFICIAL LIFT EQUIPMENT FAILURE

TECHNOLOGY

- MicroGuide™ wellbore tortuosity logs

APPLICATION

- Artificial lift
- Rod guide placement

LOCATION

- Bakken Shale

INDUSTRY CHALLENGE + OBJECTIVE

An operator in the Bakken Shale was experiencing issues with rod guide failure in one of their wells. Though there were several areas of concern throughout the well, the primary trouble spot was in the last 1,900 ft, where repeated failures were causing the project to exceed AFE. To better understand the issue and identify a means of rectifying it, the operator decided to run wellbore tortuosity logs to obtain information on true downhole conditions.

TECHNOLOGY + SERVICE SOLUTION

- With only a conventional MWD survey available, we recommended performing a comprehensive MicroGuide logging analysis to provide true insight into tortuosity over the entire depth of the well.
- Taking measurements in 1-ft increments versus stand-length intervals provides a detailed picture of true downhole conditions and issues that might be causing problems with artificial lift equipment.

RESULTS + VALUE DELIVERED

- The MicroGuide analysis revealed several severe spikes in sideloading force against the tubing that were not previously visible with MWD data (**Fig. 1**).
- The analysis showed that the casing was helically buckled from 8,700 to 10,560 ft, which was causing the increased sideloading force throughout the section as well as the issue with rod guide parting.
- Without the MicroGuide logs, the operator would have had inadequate data on the bottom hole to properly make decisions on the best artificial lift method.

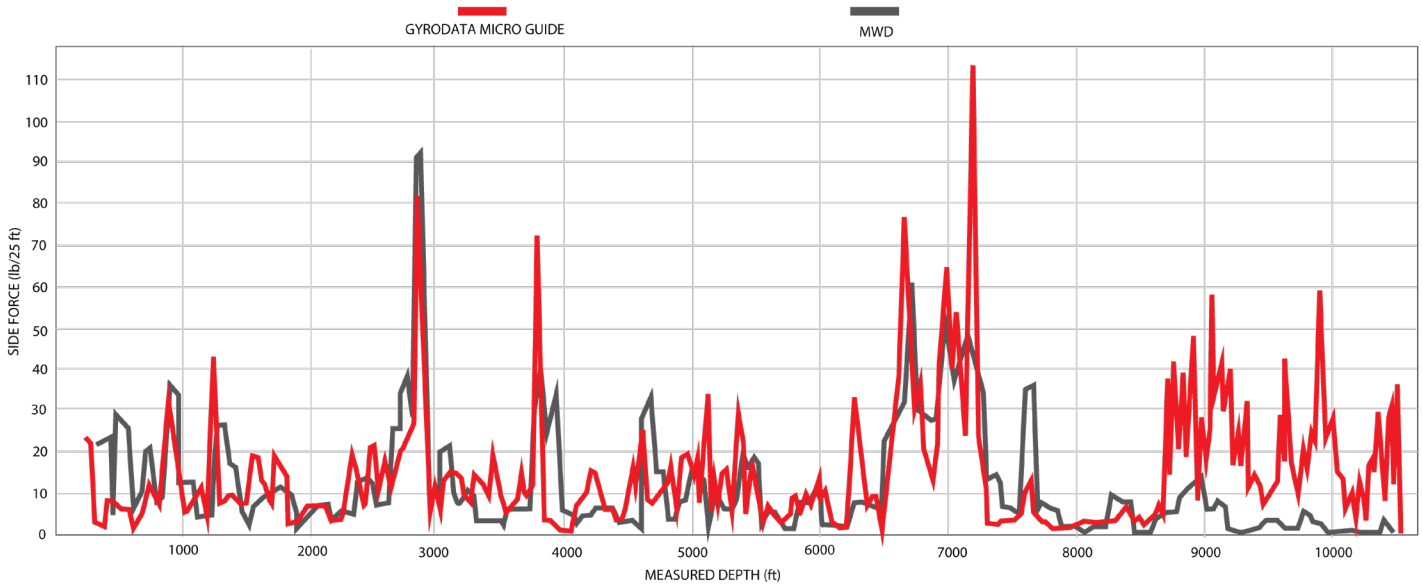

Fig. 1—The data from the MicroGuide logs shows several tortuosity spikes not picked up with the MWD tools, as well as a concerning area from 8,700 to 10,560 ft.