CASE STUDY

GYROGUIDE REVEALS TVD DISCREPANCY WITH MWD DATA, ALLOWING OPERATOR TO ACCURATELY PLACE WELL

TECHNOLOGY

- GyroGuide™ real-time gyro system
- Ran on Gyrodata's wireline

APPLICATION

- Wellbore surveying
- Wellbore placement verification

LOCATION

- DJ Basin

INDUSTRY CHALLENGE + OBJECTIVE

An operator in the DJ Basin needed to verify the TVD accuracy on a recently drilled well. While geosteering with an MWD gamma tool, the operator discovered that the formation was not where they thought it should be based on the reported MWD depth. The onsite geologist noted this discrepancy, and after determinging that a missed joint of pipe was not the cause, initiated an investigation into what was really going on downhole. To obtain true TVD accuracy with high data density, the operator decided to run our GyroGuide real-time continuous gyro surveying system on electric line.

TECHNOLOGY + SERVICE SOLUTION

- Our GyroGuide real-time system provides high-accuracy wellbore placement with positional, orientation, steering, and continuous surveys.
- The system communicates to surface in real time via electric line.
- GyroGuide technology is capable of running up to 250 ft/min in continuous mode from vertical to horizontal while traversing in or out of the well, generating two independent wellbore surveys which are compared to generate a final data set.
- The system allows 1-ft data intervals versus standard stand-length measurements of 90 ft.

RESULTS + VALUE DELIVERED

- The GyroGuide system showed numerous deviations (**Fig. 1**) between the MWD and gyro survey data, which had all been calculated into the original TVD measurement.
- The system provided much clearer insight into the slide/rotate drilling patterns while building the curve, revealing previously invisible tortuosity.
- The unreported deviations contributed to the actual lengthening of TVD by approximately 37 ft at an MD of approximately 8,160 ft (**Fig. 2**).
- The report gave the completions department a full analysis of wellbore condition and validated the geologist's suspicion about the TVD variance. With this much steering through the curve, standard MWD survey data is insufficient to adequately measure accurate TVD.

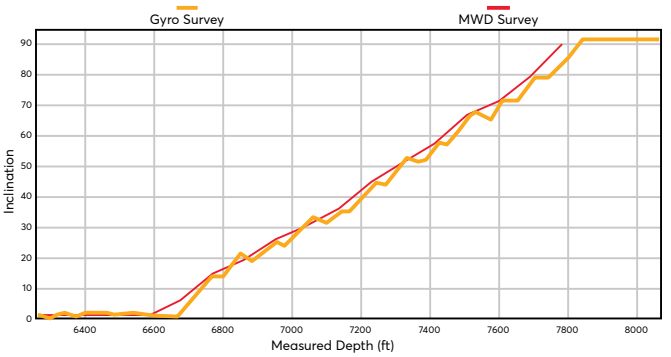

Fig. 1—The real-time gyro survey showed clear deviations in inclination between gyro and MWD data throughout the section.

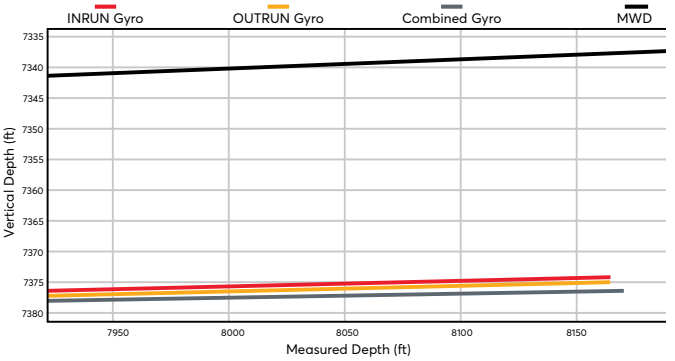

Fig. 2—The unreported variations in Fig. 1 led to a TVD different of approximately 37 ft versus that which had been reported by the MWD tool.

40 gyrodata YEARS OF INNOVATION