

# Magnus<sup>®</sup> Rotary Steerable System Saves 3 Days of Rig Time Drilling 2.5-Mile Lateral in Delaware Basin

## Objectives

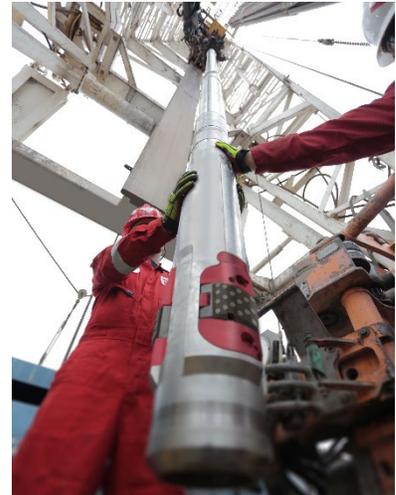
- Drill the toe end of an 8.5-in. diameter lateral section with a build rate of 16°/100 ft (30 m) in the curve. The customer had previously used a conventional motor bottomhole assembly (BHA) on several attempts to drill the section without success.
- Eliminate sliding with a mud motor while increasing the rate of penetration (ROP) above 50 ft/hr (15 m/hr).

## Our Approach

- The Weatherford team identified the Permian well as a candidate for the Magnus rotary steerable system (RSS) because of the hard, interbedded formation and challenging hole conditions. The team also recommended using the HyperLine™ drilling motor to power the BHA and the HEL™ MWD (hostile-environment-logging measurement-while-drilling) system to transmit data in real time.
- A nearby Weatherford facility in Midland mobilized the two technologies to the location within 12 hours of initial notification.
- The team deployed the RSS through a curved section to continue drilling the well. The section had multiple doglegs in excess of 12°/100 ft (30 m), with the largest dogleg measuring 16°/100 ft (30 m).
- When drilling the lateral section, the RSS reached ROPs between 120 and 150 ft/hr (37 and 46 m/hr). By comparison, a mud motor requires sliding and typically achieves a rate of penetration between 40 and 50 ft/hr (12 and 15 m/hr).
- The RSS finished drilling the lateral to a measured depth (MD) of 24,384 ft (7,432 m) in a single run under 19 hours.

## Value to Customer

- Powered by a HyperLine drilling motor, the Magnus RSS and HEL MWD system enabled drilling 1,602 ft (488 m) in just one run despite the difficulties encountered by the operator when using conventional motor BHAs.
- Compared to drilling with a mud motor, the RSS increased the ROP between 80 and 100 ft/hr (24 and 30 m/hr), which saved the operator 3 days of rig time.



With a modular and easy-to-maintain design, the Magnus RSS enabled quick deployment within 12 hours.

### LOCATION

Permian Basin, U.S.

### WELL TYPE

Onshore, horizontal, oil

### FORMATION

Red Hills Sand

### HOLE SIZE AND ANGLE

8.5 in., 90°

### SECTION TOTAL DEPTH

24,384-ft (7,432-m) MD

### TOTAL FOOTAGE DRILLED

1,602 ft (488 m)

### TOTAL CIRCULATING HOURS

42.07

### TOTAL DRILLING HOURS

18.43

### AVERAGE ROP

86.9 ft/hr (26.5 m/hr)

### PRODUCTS/SERVICES

- Drilling services
- Magnus RSS
- HyperLine drilling motor
- HEL MWD system
- DownLink Commander<sup>®</sup> bidirectional communication technology

