

Case study: Delaware Basin, Texas

Lucida service delivered superior wellbore quality and fastest Wolfcamp B well for Luxe Energy

Luxe Energy asked Baker Hughes to drill a challenging 6¼-in. lateral, reduce drilling time, and improve wellbore quality. Previous conventional runs experienced severe deflections when rotating, leading to high tortuosity in the wellbore.

Baker Hughes proposed the **Lucida™ advanced rotary steerable service** for this challenging application and engaged a multidisciplinary team to configure the bottomhole assembly (BHA) and provide drilling parameter optimization.

The Lucida advanced rotary steerable service has a robust integrated BHA with a fully customized drill bit and multi-chip module electronics to deliver exceptional drilling performance. The **Dynamus™ XG-D406TX extended-life drill bit** was specifically designed for this application with advanced drill bit directional control features, premium cutters and a proprietary connection to handle the rigors of the challenging lateral section in the Wolfcamp B formation.

Lucida's automated wellpath trajectory control system integrates both azimuthal and inclination hold modes with continuous proportional steering to automatically correct wellbore trajectory for any formation trends. The automated wellpath trajectory control system, enabled by near-bit directional sensors, checks azimuth and inclination every millisecond. The integrated system automatically adjusts steer forces second-by-second for precise control, even at very high penetration rates.

Baker Hughes operations and engineering teams worked together to optimize the Lucida service to deliver the lateral section with exact well placement and superior wellbore quality. This teamwork resulted in successfully drilling the 9,915-ft lateral with an average penetration rate of 59.3 ft/hr (18.1 m/hr) versus 39.8 ft/hr (12.1 m/hr) in the best offset. This performance in the lateral contributed to an overall savings of 2 drilling days.

The lateral section of the previous benchmark well had an average dogleg severity (DLS) of 2.25°/100 ft (30 m). The Lucida service's BHA delivered an average DLS of 1.17°/100 ft, a 48% reduction in average DLS. Since azimuthal control is critical to exact well placement, the Lucida service had an average deviation from the target of only 1.03°. The precise inclination and azimuthal control of the automated trajectory control system provided exact well placement and superior wellbore quality.

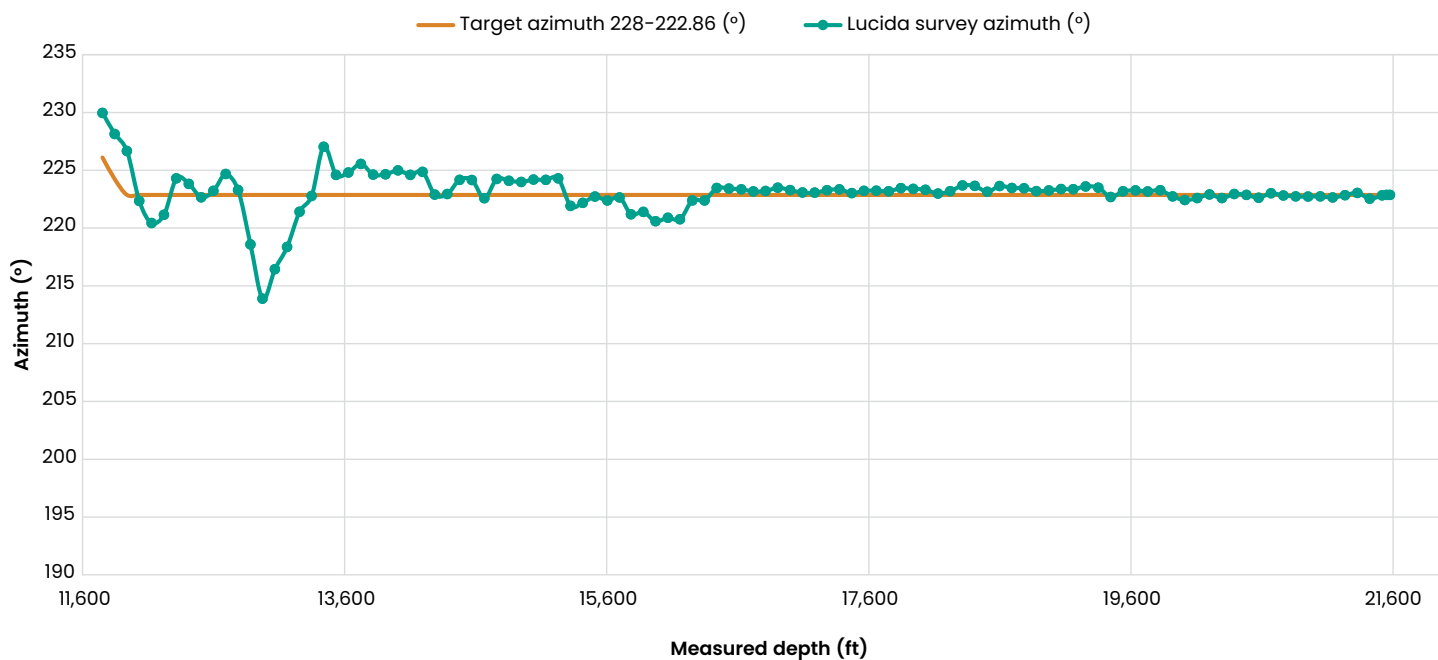
By deploying a fully integrated solution, Baker Hughes helped Luxe Energy drill a longer, faster lateral with superior wellbore quality and exceptional drilling performance, helping to save 2 days drilling overall for the well. This was the fastest Wolfcamp B well in Ward County drilled to date. Luxe Energy recognized Baker Hughes for the superior planning and execution of the difficult lateral section.

Challenges

- Reduce drilling time
- Reduce dogleg severity in lateral

Results

- Saved 2 days overall
- Improved penetration rate 49%
- Provided average dogleg severity of 1.17°/100 ft
- Reduced dogleg severity by 48%
- Delivered average azimuth deviation of 1.03°



Automated wellpath trajectory control system delivers tight azimuth control.